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" 95, P. J. McMahon, Box 199, Key West, Fla.
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" 102, Fred. W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

"Bright tin plates" is the subject of a pamphlet issued by Merchant & Company, Inc., Philadelphia, Pa., telling of this company's extensive tin plate works and its method of manufacture. A free copy of this pamphlet will be forwarded upon application.

Nautical instruments are described in a 30-page illustrated catalogue issued by the Keuffel & Esser Company, 127 Fulton street, New York city. Sextants of many patterns, binnacles of half a dozen kinds, peloruses, liquid compasses, dry compasses, aneroid barometers, marine glasses, and, in fact, every instrument that a navigator uses will be found listed in this catalogue, which also illustrates and describes drafting-room tapes and instruments of all sorts.

Clocks—marine, pendulum, ships' bell, time lock, etc.—are described and illustrated in Catalogue A, issued by The Chelsea Clock Company, 16 State street, Boston, Mass. These clocks are all made in several styles, and are finished in yellow brass, nickel, black oxide, copper bronze, green bronze, copper plate, polished or satin silver, polished or satin gold. No yachtsman or ship owner should fail to send for a copy of this catalogue, in which he will be pretty sure to find a description of the kind of clock he is looking for.

"Mound" packing tools and cold chisels are described and illustrated in a folder issued by the Mound Tool and Scraper Company, 712 Howard street, St. Louis, Mo. The folder states "there are six scrapers in each set. They vary in size from 8 to 14 inches. The scrapers are made of the best tool steel, carefully forged, tempered, and polished, so that they are true in shape and possess the proper temper for effective work. In oak case, conveniently made, so that they can always be found together in the tool room."

Indicators, valves, and gauges are profusely illustrated and concisely described in Catalogues 8B, 9B, and 10B, issued by the American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass. This company manufactures the American-Thompson Improved Indicator, and in the catalogue devoted to this subject—8B—illustrates and describes the evolution of the indicator from the earliest period of its use to the present day. The company has in its possession some of the oldest types of indicators, such as were used in 1830. A great many different kinds of indicators are described in this catalogue, and any one interested in the subject should send for a copy.

Pneumatic appliances for marine work are the subject of an illustrated catalogue issued by the Philadelphia Pneumatic Tool Company, Philadelphia, Pa. Among the tools illustrated and described are portable side-light cutters; portable backing counterbores for armor bolt holes; channel plate reaming attachment for pneumatic drills; portable pneumatic drilling, reaming, and countersinking machines; pneumatic deck calking machines; riveter frames and yokes; riveting hammers; rotary drills; reversible wood boring machines, and portable pneumatic grinders. The company manufactures a complete line of pneumatic tools and appliances for every service.

Mechanical oil pumps for steam engines, pumps, etc., are described and illustrated in a pamphlet issued by the Lunkenheimer Company, Cincinnati, Ohio. Regarding its double-feed, mechanical oil pump, the company says that it is adapted for large tandem or cross-compound engines, where a reliable pump is required for two independent feeds; as, for example, to tap the steam chest over the steam valves of a Corliss engine, and in this way get the oil at once where it is most needed. The action of this pump is positive, and with every stroke of the plungers the oil is forced directly into the steam chests or cylinders. The pamphlet contains a number of letters from users of the Lunkenheimer oil pumps, expressing great satisfaction with their action.

The "Long Arm" system of power doors and hatch gears, for the preservation of life and property at sea, is the subject of illustrated Bulletin No. 5, issued by The "Long Arm" System Company, Cleveland, Ohio. The bulletin states that the manufacture and installation of several hundred "Long Arm" power doors is now going on, or accomplished, in the United States navy and in the merchant marine The most important and effective life-saving device on ships, so this company states, in case of collision or other skin puncture from shell, torpedo, derelict, iceberg, or rock, is one rendering the hull itself unsinkable. The "Long Arm" system is said to secure efficient bulkhead insurance at a cost of less than 1 per cent. of the cost of the ship. A complete description of this company's equipment follows and should be of great interest to ship builders and naval architects.

The Dean Steam Pump Company, Holyoke, Mass., is distributing Catalogue No. D-23, reviewing the principles and advantages of the several types of condensers as applied to steam engines.

"Self-Instructing Practical Books" is the title of a 20-page catalogue issued by the Norman W. Henley Publishing Company, 132 Nassau street, New York city.

"A Short Story of Henry Maudsley," and "The Value of Heat Treatment" as applied to steel forgings, are the subjects of a pamphlet issued by Wyman & Gordon, Worcester, Mass.

"The A. B. C. Horizontal Engine" is the title of an illustrated catalogue issued by the American Blower Company, Detroit, Mich. This engine is designed for blower work, and is made extra heavy throughout, to enable it to endure the severest strain. The Rites-Carpenter automatic fly-wheel governor is furnished with the engine.

Ice boats for immediate delivery are advertised by Merriman Brothers, 162 Commercial street, Boston, Mass. These boats are designed by H. P. Ashley, and are so constructed that they may be readily shipped by freight or express. They weigh about 450 pounds. To assemble them, so the advertising folder states, "requires two hands, two hours, and a monkey wrench."

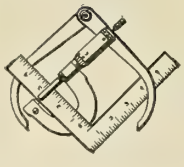
The protection of steel is the title of a folder issued by the Joseph Dixon Crucible Company, Jersey City, N. J. The folder states that "the presence of sulphurous gases, cinders, and steam, combined with exposure to the elements, provide conditions most favorable to the rapid corrosion of steel work. Time tests the efficiency of a paint. Dixon's silica graphite paint has been on the market forty years."

"Safety at Sea" is the title of a pamphlet issued by the Submarine Signal Company, 247 Atlantic avenue, Boston, Mass. This company has developed and controls a system of signalling by sound under water, which is protected by patents. The purpose of the system is to enable seamen to locate the position of their ships, and of shoals, lighthouses, etc., in foggy weather.

Steam turbines for auxiliary purposes.—The De Laval Steam Turbine Company, 74 Cortlandt street, New York city, is distributing Bulletin No. 3, illustrating and describing De Laval steam turbine alternators. This bulletin states: "The problem of successful operation in parallel of alternating current generators when driven by reciprocating engines has always been a difficult one, and the requirements as to the variation in angular velocity and regulation are seldom fulfilled in machines of small size. In this case of work the De Laval turbine has been particularly successful. The regulation of the turbine is as good as that of the highest-class reciprocating engine of equal size, and the entire absence of vibration in angular velocity permits the most successful operation in parallel or turbine-driven alternating current generators. The De Laval alternating current units are made in sizes of 75, 100, 150, and 200 Kw., 60-cycle, single, two or three-phase, and with voltages varying from 220 to as high as may be required on machines of these capacities. Machines of 25-cycle can also be furnished, but require different size generators, and are somewhat special in their construction. The generators used in the construction of De Laval alternating units are all standard belt-driven type machines, minus the bearings and bed plates. They are mounted on the turbine bed plate, and are direct-connected by means of flexible couplings. The entire unit is self-contained, and requires little foundation other than that necessary to carry the dead weight of the machine.

L. S. STARRETT says:

If you find any tools better than Starrett Tools—buy them.



Send for Free Catalogue No. 17L of Starrett Tools, 176 pages.

The L. S. Starrett Co.

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Reliable Oiling and Grease Devices

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The Corsair, Sovereign, Isis, Presto, U. S. Tug Argus are fitted with our system.

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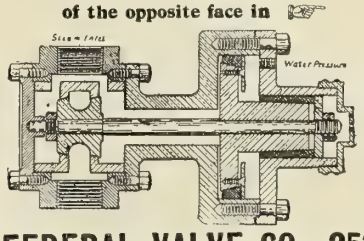
Binders. We have some neat and strong Binders made especially for preserving copies of *MARINE ENGINEERING*. Get one and protect your magazines. Price, 75 cents, postage paid.

MARINE ENGINEERING, 17 Battery Place, New York.

BY putting the Steam Pressure on one face, and the water pressure on the reduced area of the opposite face in



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CONTROLLER FOR FEED PUMPS,

a water pressure in excess of the steam pressure is maintained absolutely without regard to the fluctuations of the steam.

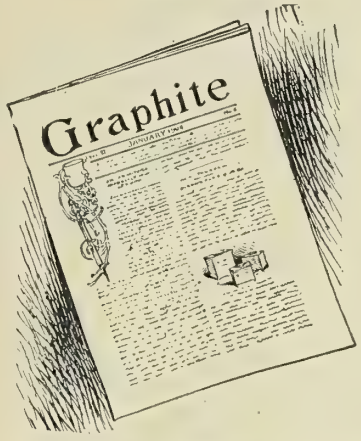
The large piston area renders it extremely sensitive to the slightest varation in water pressure, maintaining a high degree of uniformity in both water level and steam pressure, saving fuel and protecting both boiler and engine.

A booklet, now in preparation, will tell you all about the Mullins Automatic Controller. We want you to have a copy of that book.

FEDERAL VALVE CO., 2534 Western Avenue, SEATTLE, Wash.

"GRAPHITE"

FOR JANUARY, 1905



A SPECIAL ISSUE OF DIXON'S MAGAZINE, DEVOTED THIS MONTH TO THE SUBJECT OF GRAPHITE LUBRICATION.

COPIES ARE FREE

Joseph Dixon Crucible Co.
Jersey City, N. J.

Who has a copy of

TAYLOR'S BOOK on PROPELLERS

for sale and at what price?

Address

TAYLOR BOOK, care MARINE ENGINEERING
17 Battery Place, New York City

THE BROWN-COCHRAN SYSTEM OF

Carbonic Gas Refrigeration

Brown-Cochran Co.
26 CORTLANDT ST.
NEW YORK

Air compressors and vacuum pumps are described in an illustrated pamphlet of 48 pages issued by the Clayton Air Compressor Works, 114 Liberty street, New York city.

Wire rope of every description, for cables and hawsers, elevators, tramways, dredging and derrick rope, ships' rigging, etc., is described in an illustrated folder published by the American Steel and Wire Company, Chicago, Ill.

Turbines and centrifugal pumps are described in illustrated bulletin No. 1, issued by the I. P. Morris Company, Philadelphia, Pa., which is owned and operated by the William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa.

"Interesting Facts About Hydraulic Pumps" is the title of an illustrated folder issued by M. T. Davidson, 141 Broadway, New York city. Several testimonials appear in the folder from parties who are using this pump to their great satisfaction.

The Edson diaphragm pump is the subject of a mailing card issued by the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass. The company is making a guarantee trial offer regarding this pump and solicits correspondence on the subject.

Galvanized bars, angles, nails, spikes, plates, etc.—The United Galvanizing Company, 525 Front street, Philadelphia, Pa., is mailing a folder which says "when the mills hold you up and don't make shipments promptly, we can help you out. The next time you are in a hurry, send your order to us."

Ball transmission gear for motor boats and automobiles is described in a pamphlet issued by the New York Gear Works, 56 Greenpoint avenue, Brooklyn, N. Y. These gears are entirely made of spur gears cut from steel blanks with hardened teeth; they run in oil in a case which is dust proof. The pamphlet also describes the Ball positive circulating pump.

Two-cycle marine gasoline engines are described in a booklet issued by the Maxwell & Fitch Company, Rome, N. Y. These engines are said to be very simple in construction, being without poppet valves, valve rods, springs, cams, or reducing levers. The engines are throttle-controlled and are claimed to run with great steadiness.

Machinists' tools are described in a very complete illustrated catalogue of 156 pages, issued by the Brown & Sharpe Manufacturing Company, Providence, R. I. Rules, squares, micrometer calipers, gauges, accurate test tools, milling machines, grinding machines, gear-cutting machines, screw machines, and cutters are the principal tools manufactured by this company, which will be pleased to forward a free copy of its catalogue upon application.

Those interested in machine tools of any kind should ask to be put on the free mailing list of *The Progress Reporter*, published by the Niles-Bement-Pond Company, 136 Liberty street, New York city. The object of this publication is to keep the employees of the company and the public in general, informed as to the new machines and devices which are constantly being brought out. No. 5 illustrates and describes a lathe with a new change-gear device; a new duplex milling machine for forge work; a new 100-inch quartering machine for driving wheels; a 72-inch planer with side heads having taper attachment; magnetic relief applied to head of 14-foot planer; a four-bladed frame drill; a two-spindle vertical drill; a 10-foot radial drill; turret boring and turning mills; heavy bar shears; straight and taper reamers, etc. This number of *The Progress Reporter* contains a facsimile reproduction of a diploma awarded the Niles-Bement-Pond Company at the Osaka exposition, Osaka, Japan.

WATCH THIS SPACE FOR OUR NUMEROUS SPECIALTIES

WALWORTH MFG. CO. TOOLS and SUPPLIES for STEAM WATER and GAS USERS BOSTON MASS.

GOLD MEDAL ST. LOUIS EXPOSITION

FOR

VALVES, BRASS and IRON GOODS, PIPE FITTINGS, ETC., ENGINEERS', GAS and STEAM FITTERS' TOOLS

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Write for Pocket Catalogue

JOBBERS SELL THEM—IF YOURS DON'T, WRITE

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Write for our BLUE CATALOGUE "D," showing complete line of engineers' pipe fitting tools

Drafting room furniture is described and illustrated in a 32-page catalogue issued by Fritz & Goeldel Manufacturing Company, Grand Rapids, Mich.

Electric hoists for ship yards, machine shops, coal yards, etc., are described and illustrated in Bulletin No. 222, issued by the Sprague Electric Company, 527 West 34th street, New York city.

Saved 13,800 pounds of coal in one day is the title of a folder issued by Warren Webster & Company, manufacturers of the Webster heating system, Camden, N. J.

Sir William Crookes is the subject of the latest brief biography issued by the Bullock Electric Manufacturing Company, Cincinnati, Ohio.

Electric hoists, winches, and capstans, are described in illustrated Catalogue 046, distributed by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y.

Buckeye steam engines are illustrated and described in a 126-page catalogue issued by the Buckeye Engine Company, Salem, Ohio.

Chains, plate and cast washers, and burrs.—The Allegheny Forging Company, Pittsburg, Pa., is distributing folders containing price lists of its various chains, washers, burrs, etc.

Special machinery, for sale by the Garvin Machine Company, Spring and Varick streets, New York city, is described and illustrated in a 32-page catalogue this company is distributing.

"High-Grade Cranks for High-Grade Engines," is the title of a book on forgings for engineers, issued by W. H. Anderson & Sons, manufacturers of tools and forgings, 21 St. Aubin avenue, Detroit, Mich.

"Shutting off the Waste; Some Facts, Figures, and Results of the Economical Operation of Condensing Power Plants," is the title of a pamphlet issued by Warren Webster & Company, Camden, N. J.

A compensating carburetor.—The Maxwell & Fitch Company, makers of gasoline engines, Rome, N. Y., is distributing cards calling attention to its carburetor, which, it states, "gives a perfect mixture for all speeds, without changing the adjustment of the needle valve."

Edson steering gears.—The Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass., is distributing a mailing card calling attention to its "Meteor" steering gears. The card says "While this gear was first designed for the Emperor William, we make it in less fancy form for fishermen and merchant boats."

"A. B. C." fans and blowers are the subject of an illustrated booklet issued by the American Blower Company, Detroit, Mich., manufacturer of heating, ventilating, drying, and mechanical draft appliances. The company's Type E exhauster possesses novel features which it is claimed do not exist in any other fan. A full description will be sent upon application.

BUSINESS NOTES.

MR. A. N. VAN DEMAN, formerly connected with the Pittsburg White Metal Company, is now general manager of the white metal department of the Atlantic Brass Company, Jersey City, N. J.

CHAINS AND CABLES, FOR ANCHORS, DREDGES, rafts, cranes, etc., are manufactured by the J. B. Carr Company, Troy, N. Y., which has been making chains and cables since 1865.

LAUNCH AND ENGINE AGENCY.—The Lamb Boat and Engine Company, Clinton, Iowa, has arranged for a Chicago agency with H. L. Hoffman, 394 Wabash avenue, who will handle a full line of the boats and engines of the Lamb Company, and who is ready at any time to furnish supplies and anything that launch owners may wish for in connection with their boats.

A LARGE ORDER FOR CHAINS.—Bradlee & Company, Beach street and E. Susquehanna avenue, Philadelphia, Pa., have received an order from the Southern Pacific Company, San Francsico, Cal., for 4,296 feet of marine railway chain. The test of this chain, made under supervision of the H. I. Crandall & Son Company, East Boston, Mass., showed a breaking strain of 462,800 pounds.

A NEAT DESK BLOTTER.—H. B. Underwood & Company, Philadelphia, Pa., manufacturers and designers of portable tools, are distributing blotters for office use; several being fastened together with an ornamental celluloid back, with pictures in several colors representing game cocks fighting, and also showing a picture of the Underwood portable cylinder boring bar.

To Paint a Vessel White

with anything but

OXIDE OF ZINC

paint is to commit a wasteful act of folly. All ship painters know or ought to know that there is no marine white except

Zinc White

FREE: OUR PRACTICAL PAMPHLETS

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"Paints in Architecture,"
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We do not grind zinc in oil. List of manufacturers of zinc white paints will be furnished on request.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

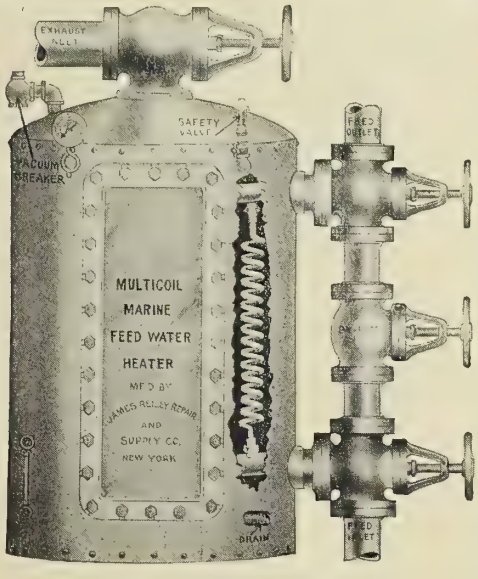
Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

About Your Heaters

No crawling or leaky tubes—perfect elasticity—light weight—no air pocketing—entirely automatic—only one pump required.

In our heater, the water flows from a cooler to a warmer zone, and in this way one square foot of our coil heater does as



much work as two square feet of tubes. The efficiency of a heater depends not on the quantity of surface, but on the agitation of the liquid and its velocity of flow. Our coils are arranged to agitate and rotate the water during its passage.

With our heater, it is merely a matter of opening the side door and all the coils are accessible for removing the grease, which is impossible in a straight tube heater.

Some of the Ships that have them:

Monroe, Jefferson, Asbury Park, Sandy Hook, Horatio Hall, Mannattan, North S ar, Kershaw, Powhattan, Juniata, Lexington, Essex, Chatham, D. Mills, Middletown, Hartford, H. Wilson, Victory, S. Carroll, Sampson, Schley, Hoboken Ferry Boats, Erie Ferry Boats, Transport Sumner.

Will you read the

Tri-City Supply House's

"Feed-Water Sense" Booklet?

Mfrs.

THE JAMES REILLY REPAIR & SUPPLY CO.

Main Office, 229 West Street NEW YORK CITY

A PILOT HOUSE STEAM STEERER.—The Dake Engine Company, Grand Haven, Mich., makes a steam steerer which it states is "simple, compact, and durable, and occupies small floor space."

PORTABLE CYLINDER BORING BARS, for boring cylinders and sternpost bearings, are manufactured by the H. B. Underwood Company, makers of portable tools, 1023 Hamilton street, Philadelphia, Pa.

THE NATIONAL ASSOCIATION of Engine and Boat Manufacturers will hold only one exhibition in 1905, and this will be in connection with the Sportsmen's Show in the Madison Square Garden, New York city in February. For this occasion water space has been reserved for the boats.

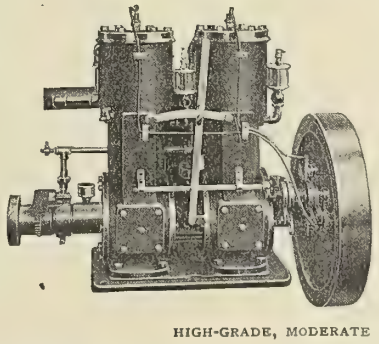
RAND DRILL FOR GOVERNMENT USE.—The United States government has bought from the Rand Drill Company, 128 Broadway, New York city, twenty-seven "Imperial" pneumatic hammers and drills, for use in connection with the improvements in the harbor of Manila, P. I.

THE STOW FLEXIBLE SHAFT COMPANY, Philadelphia, Pa., reports having received many orders during the past month, among them being a Halsey portable drill for a firm in Vancouver, B. C., an 18-foot flexible shaft, and a large crank pin turning machine for its St. Louis agent, and three electric hammer outfits shipped to Italy for the government navy yards.

FREE SAMPLE OF MAGNETIC PACKING.—That Smooth-On cement rubber packing is magnetic may be proved by any one who will send to the Smooth-On Manufacturing Company, Jersey City, N. J., for a free sample of its cement rubber packing, which will be forwarded in a neat leather case together with a small magnet, to those who mention MARINE ENGINEERING. It will be found that this packing, though as smooth and soft as rubber, contains so much iron that the magnet will hold it suspended in the air.

A KEROSENE HOISTING ENGINE is manufactured by August Mietz, 128 Mott street, New York city, that is stated to be giving perfect satisfaction after eighteen months' trial. The engine is used in hoisting barrels of crude oil and is installed on a barge. Engines of this type, ranging from 2 horse power to 30 horse power, are employed for various purposes, such as driving threshing machines, water and air pumps, etc. They may be adapted to driving portable stone crushers, concrete mixers, and other use where an engine of moderate power is required.

FLAKE GRAPHITE, for the lubrication of air compressors, has been put on the market by the Joseph Dixon Crucible Company, Jersey City, N. J. The company states that certain important conditions are presented in the lubrication of air compressor cylinders which are not encountered in the case of steam cylinders. Dust and grit drawn into the cylinders through the intake frequently cause destructive grinding. The heat is dry and tends to carbonize cylinder oils, especially compound oils, clogging the outlet valves and choking the discharge pipes. If an oil of too low flash point be used, explosive vapors are formed which high frictional heat at some time may accidentally ignite. A number of disastrous explosions of air receivers are said to have been traced to this cause. Dixon's flake graphite, so the company states, forms a perfect lubricant which reduces friction and wholly ends groaning, grinding, and cutting. The company will send free upon application copies of the eighth edition of its pamphlet, "Graphite as a Lubricant," discussing in detail the theory of graphite lubrication and its practical benefits.



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HIGH-GRADE, MODERATE IN PRICE

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Wire rope for towing hawsers.—The Durable Wire Rope Company, 288 Congress street, Boston, Mass., states that its rope is unequalled for ships' rigging, mooring lines, and towing hawsers. The company's cable-laid hawsers are made of four or five durable wire ropes laid around a specially treated Manila center, and are stated to be smaller and more flexible than Manila hawsers of equal strength. Bulletin No. 7 will be forwarded upon application.

"Fuel oil furnaces and equipment has been our business for fifteen years," says the Rockwell Engineering Company, 26 Cortlandt street, New York city. Regarding its rivet forge, the company says "control, efficiency, economy, and practical indestructibility are governing qualities of a good heater. . . . This user of air and oil, or kerosene, induces the high, soft heat necessary to a superior forge. Hardening, tempering, and light forging are also feasible."

Threading and cutting machines, electrically driven, are advertised by D. Saunders' Sons, Yonkers, N. Y. This firm builds an electric motor-driven threading and cutting machine that is claimed to have many advantages over a belt-driven machine. There is nothing to attach or detach; the die head can be pushed to one side and the pipe cut without taking the die head off the machine or pushing the pipe over the chasers and spoiling them. An automatic pump keeps oil constantly on the chasers and cutting-off tool. Catalogue free upon application.

The Camden Anchor-Rockland Machine Company, Rockland, Me., reports that in addition to hundreds of tons of anchors which it ships yearly to all parts of the United States and Canada, that within two years it has sold a hundred anchors to the United States navy for use on torpedo boats. In 1901 the Camden Anchor Company, of Camden, Me., was consolidated with the Rockland Machine Company, forming the present company, with headquarters at Rockland. In addition to its anchors, which are made at Camden, the company manufactures the Knox marine gasoline engine at its Rockland plant.

Asbestos packing for superheated steam.—The H. W. Johns-Manville Company, 100 William street, New York city, states regarding its asbestos "Vulcabeston" packing, that it is furnished in sheet, moulded, and special ring forms for joints; moulded concave and convex rings for movable rods and valve stems; twisted and braided rope form for stop valves; and special extra-graphite forms for work on steam turbines. The company states that "Vulcabeston" is used in nearly every large power plant in the United States where superheated steam has been installed. A pamphlet describing "Vulcabeston" will be sent upon application.

Hertzog anti-fouling paint.—The Hertzog Paint and Varnish Company, 627 Cherry street, Philadelphia, Pa., has received the following letter from Charles E. Small, of the Yacht Masters' and Engineers' Association, foot of 23d street, Brooklyn, N. Y.: "I had the steam yacht *Riviera* painted with your anti-fouling paint August 1, over a brush coat of cement, and it has given satisfaction. I have not had *Riviera* on the dock since, so cannot tell you the condition of the underbody, but along the water line and as far below as I can see it has kept very clean from grass and other sea growth. I am so well satisfied with it I shall use it again next year."

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" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

"Imperial Porcelain Lavatories," is the title of a 48-page illustrated catalogue issued by the J. L. Mott Iron Works, 84 Beekman street, New York city.

Those interested in gasoline, electric and steam launches, sail boats, row boats, hunting and fishing boats, canoes, skiffs, etc., should send six cents to the Madison Boat Company, Madison, Wis., for a catalogue now on the press, in which will be listed the company's full line of boats.

"Something New in Air Compression," is the title of a folder issued by the Norwalk Iron Works Company, South Norwalk, Conn. The folder states: "In most establishments using compressed air it is desirable to have two pressures to cover the full range of the requirements. First, there is the demand for 80 to 100 pounds for pneumatic tools, hoists and general power purposes. Second, there is need of air of only 20 to 25 pounds for sand blasting, painting, blowing chips from work, and general uses demanding a low pressure. The usual plan heretofore pursued is to compress all the air to the highest pressure and then by means of a reducing valve, throttle down such amount as is needed by the low pressure system. Such a course is very wasteful, for the power required to raise the pressure from 25 to 100 pounds is entirely lost for so much of the air as is used in the low pressure system. This loss is so great that in most establishments using any considerable amount of air, two entirely separate compressors are employed—one for each system. Such a plan has disadvantages, even apart from the multiplication of machines and consequent expense of installation. The outfit is inelastic in that one compressor cannot be made to help the other. Each machine to secure economy of operation must be designed for the particular pressure intended for it; it furthermore must be made of a size equal to the maximum demands of its own system at any one moment. The greatest demand for low pressure air is not usually at the same time as the greatest demand for high pressure air, and in the same way for other uses, the maximum demands of the two systems generally fall at different times. This leads to the installment of two compressors having a united capacity far in excess of the average demand or even the greatest actual demand on the two at any one moment. Modern compressors for 100 pounds pressure are invariably made on the compound system. The low pressure cylinder furnishes air to the intercooler usually at about 25 pounds pressure, but, for any good reason, this pressure can be changed by proper proportions of the cylinders. Here in one machine we have the two pressures—high and low—and of just the degree needed for the two systems of the factory. But in the ordinary compound compressors the low pressure air in the intercooler is not available for use, for the reason that whenever air is drawn from the intercooler the pressure immediately falls. The low pressure—or first air cylinder—is forcing air into the intercooler, but the high pressure—or second cylinder—is constantly taking it out, and if the pressure is to be kept up when air is drawn out for external use, then the second cylinder must be shut off or cease working to the exact extent that air is removed from the intercooler. It will not answer to shut off the supply to the second cylinder by throttling its intake, for in that case the little air remaining in the inlet ports of this second cylinder falls to a very low pressure and finally approaches vacuum. From this low pressure for a few revolutions the air is compressed to the high pressure of the final discharge. This brings about a very great degree of compression, with corresponding development of great heat. The chances of an explosion are imminent and almost certain in such a mechanical arrangement. The skip valve introduced by the Norwalk Iron Works Company is a most complete and satisfactory solution of the problem. These valves are used as the inlet valves of the second cylinder. The arrangement is such that if the pressure in the intercooler falls below a certain pre-determined point, then these skip valves will remain open and thereby the second cylinder rejects its supply of air, throwing it back into the intercooler. Thus provision is made for the outside draught. The skip valve automatically adjusts the amount, remaining open any number of revolutions or only a part of one revolution, as circumstances may require. In the meantime the speed and pressure governors of the machine will regulate the speed of the machine, making it run to suit the demands of both systems. With these arrangements on the Norwalk compound compressor any quantity of air within the limit of the machine can be drawn off at any time and the speed will be automatically adjusted. The air can be drawn out at two pressures as desired, all at the high pressure, or all at the low pressure, or any proportion at high or at low at the same time. The operation of the compressor is entirely automatic, delivering the air at the pressures desired and in the quantities as used."

When writing to advertisers please refer to Marine Engineering.

"About Oil," is the title of a folder issued by the De La Vergne Refrigeration Company, foot of E. 138th street, New York city. This folder discusses the question of a suitable lubricating oil for refrigerating and ice-making machines.

"File Filosophy," being hints and suggestions as to the proper methods of using files, together with the various applications of the most common files, is the title of a booklet issued by the Nicholson File Company, Providence, R. I. The fourth edition, just issued, consists of forty-six pages, and will be sent free to readers of Marine Engineering, upon application.

Self-adjusting piston packing, manufactured by the Ambrose Machine Company, Eagle and Provost streets, Brooklyn, N. Y., is described in a booklet issued by that company. The booklet consists in large part of a letter and diagrams from the chief engineer of the Union Railway Company of New York City, showing the beneficial effect of the company's packings. The letter says in part: "Your packing has given great satisfaction, and the cards taken from our engines speak for themselves."

"The Akers auxiliary gear is the outcome of eighteen years' experience with all kinds and classes of steering gears," is stated in a catalogue issued by the Akers Steering Gear Company, 502 Plymouth Building, Chicago, Ill. Among numerous testimonials regarding its gear that the company has received, is the following telegram from Captain Russell of steamer *Pere Marquette No. 17*: "Two hours out of Manitowoc in a heavy sea. Regular steering gear broke down. Used the Akers gear to get in with. Worked fine."

Concerning propellors.—The Norwalk Brass Company, Norwalk, Conn., is distributing a mailing card saying: "Do you realize the importance of the propeller in developing the full power of your engine? To experiment means loss of time and money. Having made a study of propellers under every condition, we are prepared to furnish true wheels of every pitch. Give us the horse power and number of revolutions of your engine and we will save you trouble. We make special speed wheels, weed cutting wheels, and wheels adapted to special hulls."

Marine gasoline engines and launches are described and illustrated in a catalogue issued by the Yacht, Gas Engine and Launch Company, The Bourse, Philadelphia, Pa. The catalogue states that "after several years of rather unsatisfactory experience with so-called 'marine' gasoline engines, due to their many defects of design, material and workmanship, we have decided to build our own, and feel that we have an engine so perfect in all its details as to overcome all the serious faults we have found in most of the engines sold for marine use. The Yacht, Gas Engine and Launch Company was formed by H. E. Danzebecher, a naval architect and marine engineer of several years' experience, who is thoroughly conversant with what is required in the designing of marine engines for yacht purposes, as well as in the design of hulls; and he has incorporated these ideas, gained from practical experience, in the "Crown" yacht engine, which is now brought to the attention of the yachting public. Marine steam engine lines have been followed as far as possible in a gas engine, and the result is a most compact, symmetrical, efficient and handsome engine. We use only the finest grades of steel, bronze and cast iron in all parts of the engine." Regarding the cylinders, water jacket, water circulation, pistons, main bearings, valves, reversing gears, ignition, lubrication, and all essential parts and features of a marine gasoline engine, the catalogue states that the very greatest care has been taken to insure the highest efficiency and strength. A portion of the catalogue is devoted to the hull department, and drawings are given showing the plans of a number of launches and yachts the company has built.

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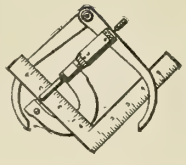
If you find any tools better than Starrett Tools—buy them.



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FOR

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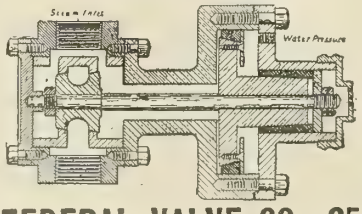
BY putting the Steam Pressure on one face, and the water pressure on the reduced area of the opposite face in



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a water pressure in excess of the steam pressure is maintained absolutely without regard to the fluctuations of the steam.

The large piston area renders it extremely sensitive to the slightest varation in water pressure, maintaining a high degree of uniformity in both water level and steam pressure, saving fuel and protecting both boiler and engine.

A booklet, now in preparation, will tell you all about the Mullins Automatic Controller. We want you to have a copy of that book.

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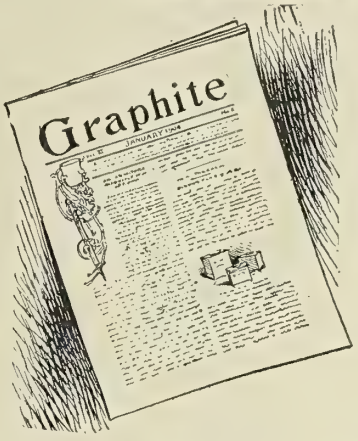
"GRAPHITE"

FOR JANUARY, 1905



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WHO

Seek a Position

OR WHO

Seek Competent Help

SHOULD NOT OVERLOOK THE VALUABLE SERVICES OF

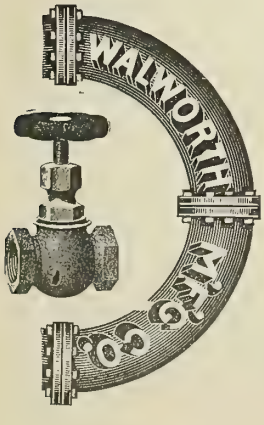
Marine Engineering
Employment Bureau

Rocking and shaking grates are described in an illustrated catalogue issued by the Martin Grate Company, Fisher Building, Chicago, Ill.

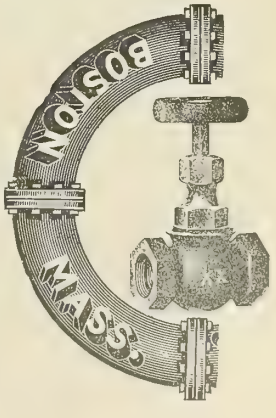
Reagan's improved chopping grates are described in an illustrated catalogue issued by the Reagan Grate Bar Company, 209 North Front street, Philadelphia, Pa.

An efficient steam flue blower.—The Power Specialty Company, 513 Washington Arcade, Detroit, Mich., issues a folder describing its steam flue blower, which says: "You can't run any kind of a boiler economically unless you keep the flues clean. Soot means loss of efficiency, power, time and money The only thing to do is to clean out the soot and the only practical thing to clean out the soot with, up to the present time, was a small blower attached to a piece of hose with one end connected to the steam pipe. The operator put the little blower in each and every tube in an effort to blow out the soot, and this process was generally repeated several times every day. This must be done from the front of the boiler, against the natural draught. Mr. J. D. Mitchell, chief engineer of the Gilchrist Transportation Co., Cleveland, Ohio, U. S. A., who formerly used the old method says: 'When we used the old-style blower, it necessitated the opening of the britchings and spoiled the draught to the extent that we had to check the engine, to at least half speed for twenty minutes to half an hour for each boiler, where with the Diamond steam flue blower we do a better job and gain steam while blowing, as it operates with the draught and not against it and you do not have to open anything.' Experience has established the fact that keeping the boiler open for a longer period than twenty minutes, causes loss of steam pressure and consequent loss of speed in a vessel or the running of machinery. The cost of additional fuel to regain the lost pressure is probably inestimatable, as it requires the multiplying of waste three times daily for 300 days. If only about twenty minutes is allowed for blowing out the tubes, it means only one-half a minute to each tube, and you can't clean a tube in this time blowing against the natural draught. The front part of the tube may be cleaned as far as you can see, but the back part is bound to be full of soot and it is the rear end of the tubes that is the most dangerous to leave soot in, because it is the most exposed to fire. When some soot is blown out by the old method, it accumulates in the smoke box from which it must again be removed. The Diamond steam flue blower gets rid of all the disadvantages of the old method. It is installed in the rear wall of the boiler and blows the soot, with the natural draught of the boiler, to the front and out through the chimney. The thorough cleaning of all the tubes does not take more than five minutes, because it cleans in each operation a cluster of tubes four feet six inches in diameter. It does away with the most costly loss of steam pressure and is an immense saver in fuel, and consequently there is no loss of speed and no necessity for extra stoking and fuel. It practically does away with the firemen's work which can never be thorough and makes it possible to keep a uniform pressure of steam with perfect ease. Messrs. John H. Boland & Co., 203 Main street, Buffalo, N. Y., users of the Diamond steam flue blower, write as follows: 'Last year we were compelled to carry three firemen, but since putting in the Diamond steam flue blower, we have been able to get along with two firemen.' The Western Transit Company, Buffalo, N. Y., which is using fifty-two of these blowers, writes as follows: I't does everything you claimed for it and keeps the flues and back heads clean. The operating is simple and easy. It does away with the frequent purchasing of steam hose and has a tendency to save coal. It takes only five minutes to clean the boiler.' "

Mr. Engineer



you should prove your purchases. Get your evidence from the balances. When you've got your weight-value fixed, then see that the thick-and-thin of it means the wear and tear that your money should cover. The sixty-three years of our business life were spent in giving you the solid values that will stand any test. The kinds of Valves we make are limited only by the needs of Steam, Water and Gas work.



WALWORTH MFG. CO., - BOSTON

Watertown automatic engines are described and illustrated in a catalogue issued by the Watertown Steam Engine Company, Watertown, N. Y.

Gate valves for steam and water, bent pipe work, tools and supplies of all kinds for steam, water and gas users are described in circulars distributed by the Walworth Manufacturing Company, 132 Federal street, Boston, Mass.

Pressure and vacuum gauges, ammonia gauges, pop safety valves, blow off valves, globe and angle valves, and other engineering specialties are illustrated and described in a folder issued by the Crosby Steam Gauge and Valve Company, 78 John street, New York city.

Specialties for steam and water users, such as shaking grates, boiler feeders, float valves, ball cocks, etc., are described and illustrated in a catalogue received from the F. W. Foster Manufacturing Company, No. 6 Portland street, Boston, Mass.

The Paulson pump cylinder reducing sleeve, manufactured by the Seattle Machine Works, Seattle, Wash., is described in a circular received from the company. This sleeve is designed especially for converting a standard steam boiler-feed pump into a high duty pump, and is said to be especially desirable on board ship, making it possible to change the regular boiler-feed pump to a test pump, using a low pressure donkey boiler for steam supply.

Books and things. "Number Two," is the title of an interesting and attractive booklet issued by the Derry-Collard Company, 256 Broadway, New York city, containing descriptions of various books on engineering subjects, and lists of many more. Mention is made of the Derry-Collard Book Club, a new plan which enables one to buy any books or papers wanted and to pay for them on the installment plan. Full description of this club plan can be obtained of the Derry-Collard Company by mentioning Marine Engineering.

Speed wheels are illustrated and described in a catalogue issued by the Michigan Motor Company, Grand Rapids, Mich. The catalogue states that the company's propeller wheels are accurately balanced, being designed by a naval architect, and are built of the best material. The company makes two and three blade reversible, and two and three blade solid wheels. Reversible friction clutch or transmission gears are also described in this catalogue. The clutch is claimed to be very powerful and easy to operate.

Packings for steam, air, ammonia and water are described and handsomely illustrated in a 140-page catalogue issued by the Garlock Packing Company, Palmyra, N. Y. This company has branch factories in Atlanta, Ga., Denver, Colo., San Francisco, Cal., and has stores and offices all over the United States, besides having a European factory and office at Hamburg, Germany. The first forty-two pages of the catalogue are devoted to ring packings for all purposes. Twenty-five styles of packings are illustrated in this section, and many more are described, including a metallic packing which the company has recently placed on the market, and which it states is the result of years of careful study. Pages 43 to 52 are devoted to spiral packings. Seven styles of spiral packing are illustrated, and several more are listed. Coil packing, with ten illustrations, is the subject matter of pages 53 to 72. Thirteen styles of sheet packing are described and illustrated in pages 73 to 82. Gaskets, pump valves, miscellaneous packings, diaphragms, valve disks, rubber belting, leather belting, lubricants, metal polish, and other specialties are described in the remainder of this catalogue, which every engineer should have, and which will be sent free upon application, to those mentioning Marine Engineering.

SYRACUSE BOILER WORKS

Marine Boilers and Engines

GAS, WATER and OIL TANKS

SYRACUSE, N. Y.

To Paint a Vessel White

with anything but

OXIDE OF ZINC

paint is to commit a wasteful act of folly. All ship painters know or ought to know that there is no marine white except

Zinc White

FREE: OUR PRACTICAL PAMPHLETS

"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects,"
"Paint: How, Why and When,"
"French Government Decrees."

The New Jersey Zinc Co.

71 BROADWAY
NEW YORK

We do not grind zinc in oil. List of manufacturers of zinc white paints will be furnished on request.

CONDENSER TUBES

last longest if made of

"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.

WATERBURY, CONN.

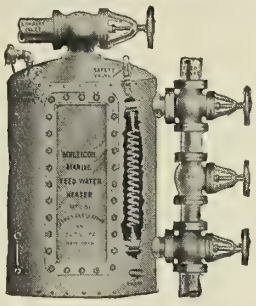
New York, 253 Broadway Boston, 172 High St.

About your

HEATERS

No crawling or leaky tubes—perfect elasticity—light weight—no air pocketing—entirely automatic—only one pump required.

In our heater, the water flows from a cooler to a warmer zone, and in this way one square foot of our coil heater does as much work as two



square feet of tubes. The efficiency of a heater depends not on the quantity of surface, but on the agitation of the liquid and its velocity of flow. Our coils are arranged to agitate and rotate the water during its passage.

With our heater, it is merely a matter of opening the side door and all the coils are accessible for removing the grease, which is impossible in a straight tube heater.

Some of the Ships that have them:

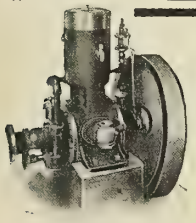
Monroe, Jefferson, Asbury Park, Sandy Hook, Horatio Hall, Mannattan, North Star, Kershaw, Powhattan, Juniata, Lexington, Essex, Chatham, D. Mills, Middletown, Hartford, H. Wilson, Victory, S. Carroll, Sampson, Schley, Hoboken Ferry Boats, Erie Ferry Boats, Transport Sumner.

Will you read the **Tri-City Supply House's** "Feed-Water Sense" Booklet?

Mfrs.

THE JAMES REILLY REPAIR & SUPPLY CO.

Main Office, 229 West Street, - NEW YORK CITY



15 DAYS' TRIAL ON THIS Marine Engine

No cash payment required. We pay freight to any point within 1,000 miles of Chicago. Spark Plugs guaranteed for 365 days, $1.50 each.

SECOND-HAND ENGINES ALL SIZES.

McDONALD & ERICKSON,

38D W. Randolph Street, - CHICAGO

THE PROFESSOR ON SHIPBOARD

In addition to the practical information it contains, it is a most readable story of life at sea. There are twelve chapters: I, In the Fireroom; II, Hardships of Firemen; III, Night Watch in a Gale; IV, Interview with Barney, the Oiler; V, Some Points on Lubrication; VI, Why Engines are Non-efficient; VII, Salt Water and Boiler Scale; VIII, Cleaning Boilers in a Tropical Port; IX, How to Use Indicators; X, Simple Explanation of the Indicator; XI, Overhauling the Machinery; XII, Painting the Pipe System. 100 pages. By C. A. McAllister.

Price $1.00 Postpaid.

For sale by MARINE ENGINEERING,
17 Battery Place, New York City.

The second edition of *The Mariner's Guide,* published by H. Louderbrough, proprietor of the New Jersey Paint Works, Jersey City, N. J., has just been issued.

The January issue of "Graphite" is devoted especially to the subject of lubrication. This is a subject that interests almost every reader of MARINE ENGINEERING, and copies of this number can be had free by addressing the Joseph Dixon Crucible Company, Advertising Department, Jersey City, N. J.

CALENDARS RECEIVED.

The Broun-Green Company, commercial stationers, 38 Beaver street, New York city, a large wall calendar.

The Marine Manufacturing and Supply Company, 157 South street, New York city, a small desk calendar.

The Universal Safety Tread Company, 45 Broadway, New York city, a calendar calling attention to its safety tread for stairways, yachts, steamboats, etc.

The Morris Machine Works, Baldwinsville, N. Y., a handsomely lithographed calendar with a reproduction of a marine scene by Moran, entitled, "Solitude."

The Pope Manufacturing Company, 21 Park Row, New York city, a desk calendar with a leaf for every day in the year, and a "wise saw" on every leaf.

The Eastwood Wire Manufacturing Company, Belleville, N. J., a large wall calendar with a lithograph of the company's factory buildings.

The Climax Stationery Company, 29 Sullivan street, New York city, manufacturing stationers, lithographers and printers, a wall calendar giving the phases of the moon for the year.

The Cleveland Pneumatic Tool Company, Cleveland, Ohio. Two calendars handsomely lithographed in several colors, the subject of each being the head and bust of a young girl.

The A. W. Harris Oil Company, Providence, R. I., a calendar with the painting by Thos. Blinks, entitled: "The Thoroughbreds," lithographed in several colors.

William Bishop's Sons, 205 South street, New York city, manufacturers of marine plumbing, a calendar with a reproduction of Schurmann's painting, "A Surprise."

The Washington Trust Company, 280 Broadway, New York city, a calendar with blank spaces for memorandums for every day in the year.

The Falls Hollow Stayboit Company, Cuyahoga Falls, Ohio, a a calendar with a reproduction in several colors of Peter Newell's painting, "A Promising Bite."

The Ross Valve Company, Troy, N. Y., a calendar consisting of a neat leather frame, with a card for every month. Attention is called to the company's feed water filters, regulating valves and water engines.

The Star Brass Manufacturing Company, 108 East Dedham Boston, Mass., a wall calendar with photographs of the company's pop safety valves, steam water and vacuum gauges, revolution counters, indicators and other engineering specialties.

The United States Metallic Packing Company, 429 N. 13th street, Philadelphia, Pa., a neat calendar which will be sent free to engineers upon request, showing a sectional photograph of the company's' Class No. 1 metallic packing, with key naming the parts.

A FEW UNBOUND VOLUMES OF MARINE ENGINEERING

REMAIN UNSOLD. As long as they last they will be sold as follows:

1897 (Vol. I)	*$1.00*
1899 (Vol. III)	*1.00*
1901 (Vol. VI)	*1.00*
1902 (Vol. VII)	*1.00*
1903 (Vol. VIII)	*1.00*
1904 (Vol. IX)	*2.40*
Total,	*$7.40*

FIVE DOLLARS GETS THE SET

ONLY $5.00. YOU PAY EXPRESSAGE.

Marine Engineering, 17 Battery Place, New York

The Baldt Anchor Company, Chester, Pa.; a handsome reproduction of a picture of a fleet of schooners rounding a point at night, lithographed in many colors.

The Diamond Drill and Machine Company, Birdsboro, Pa., manufacturer of cold saws, belt lacing machines, steel castings, etc., a large calendar with the well-known head of a girl by Philip Boileau, in several colors.

The Moran Towing Company, 10 South street, New York city, a calendar giving time of high and low tide at Sandy Hook, Governor's Island and Hell Gate, for every day in the year; also tide tables for some dozens of points on the Atlantic coast.

H. B. Underwood & Company, 1025 Hamilton street, Philadelphia, Pa., a large calendar suitable for hanging on the wall, calling attention to the company's portable cylinder boring bars, portable milling machines, and other machine tools.

Chas. C. Moore & Company, engineers and contractors, San Francisco, Cal., a calendar with a handsome map in several colors of the western coast of North America, which is stated to be the territory embraced by the business of the company.

The Ashton Valve Company, 271 Franklin street, Boston, Mass., a calendar with a reproduction in several colors of a painting called: "Meet Me at the Bars," the subject being a young girl waiting at the bars of a country fence.

Stettiner Brothers, book and commercial printers, 52 Duane street, New York city, a wall calendar with a cover handsomely printed in several colors. Every day in the year has a space for memorandums, and in the back are smaller calendars for 1904, 1905 and 1906.

BUSINESS NOTES.

No more watch charms.—The Baldt Anchor Company, Chester, Pa., requests us to announce that its supply of watch charms in the form of a miniature anchor, is entirely exhausted.

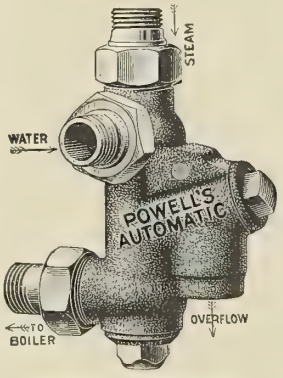
"Northern" electrical generators.—The Tennessee Coal, Iron and Railroad Company, Birmingham, Ala., has given the Northern Electrical Manufacturing Company, Madison, Wis., an order for three 150 Kw. slow speed generators.

The Remy Electric Company, Anderson, Ind., reports that among the users of its magnetos are the following: The Samson Iron Works, Witte Iron Works, Hercules Gas Engine Works, A. W. Toppan, Winton Motor Carriage Company, Locomobile Company of America, and the Peerless Motor Car Company.

An efficient auxiliary engine.—The B. F. Sturtevant Company, Hyde Park, Mass., manufacturer of fans, blowers, and marine and stationary engines, states that "the rigid specifications drawn by the United States navy department for auxiliary engines required in the equipment of vessels of recent construction, have done much to improve their general standard of efficiency. It is therefore unusual to find that even these exceptional requirements have been improved upon. Such, however, is true in the case of recent designs of vertical cross-compound engines built by us for direct connected generator driving. These engines have shown upon an economy test, a consumption of steam per horse power four pounds less than that demanded by the specifications. This result is characteristic of a line of engines we are building to develop from 25 to 150 H. P."

ENGINEERS!

HERE IS YOUR CHANCE TO TRY A GOOD MACHINE.



POWELL INJECTOR.

The Powell Automatic Injector

will be sent for trial and practical test. A trial will convince you that it is the best machine of its kind on the market. The advantages insured in its construction, the simplicity and efficiency of the apparatus, the comparatively small cost of installation and maintenance, will be appreciated by all UP-TO-DATE Engineers and all other steam users. It requires a very small amount of steam for its operation, making it very economical.

Send for circulars and particulars. Don't be backward.
Address Dept. "Injectors."

THE WM. POWELL CO.

New York Depot, 51 Cliff St.
Philadelphia Depot, 518 Arch St.

CINCINNATI, OHIO.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

UNITED STATES METALLIC PACKINGS

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

RELIABLE—SATISFACTORY—EFFICIENT

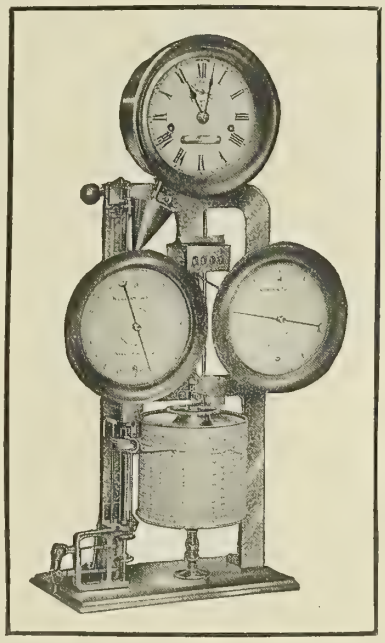
The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

DON'T FAIL TO VISIT THE
NATIONAL MOTOR BOAT AND SPORTSMAN'S SHOW
Madison Square Garden
NEW YORK CITY
FEBRUARY 21st TO MARCH 9th, 1905

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

Nicholson Ship Log Co.

204 Superior Street, Cleveland, Ohio

ROCHESTER GAS ENGINES

ONE, TWO, THREE AND FOUR CYLINDERS

3½ TO 60 H. P.

Superiority of Design

Excellence of Construction

Reliability of Operation

Write for 1905 Price List

ROCHESTER GAS ENGINE CO.

695 Driving Park Avenue

ROCHESTER, N. Y.

Member National Association of Engine and Boat Manufacturers

Removal notice.—Philip Braender, manufacturer of the Braender bilge syphon, has removed from 63 W. 125th street, to 143 W. 125th street, New York city.

Mr. Maurice E. Baird, with headquarters in Minneapolis, Minn., will represent the Eureka Fire Hose Company, 13 Barclay street, New York city, in Iowa, Northern Wisconsin, Minnesota, North and South Dakota and Montana. Mr. Baird has been connected with the Eureka Fire Hose Company for some years, having, together with his brother, represented the company in Chicago.

Mr. E. S. Lea has resigned as sales manager of the De Laval Steam Turbine Company, Trenton, N. J., and has opened an office at 42 Broadway, New York city, as consulting engineer. Mr. Lea is a member of the American Society of Mechanical Engineers, and an associate member of the American Institute of Electrical Engineers, and of the American Society of Naval Engineers.

Largest electrical generators in the world driven by gas engines. The Crocker-Wheeler Company, Ampere, N. J., has received from the California Gas and Electric Corporation, San Francisco, Cal., an order for three 4,000 Kw., three phase, 13,200 volt, 25 cycle, 88 R. P. M., revolving field, alternating current generators, to be driven by 5,400 H. P. gas engines. The plant will furnish power for operating all the street railways in San Francisco and vicinity.

The National Exhibition of engine and boat manufacturers, in conjunction with the Sportmen's show, will be held at Madison Square Gardens, New York city, February 21, to March 9. Most of the leading makes of motors, engines, and accessories, with the finest models of boats yet produced, will be on exhibition. On the main floor will be the lagoon, which is said to be the largest artificial indoor lake, and on this lake the boats will be exhibited. This will be a great opportunity for those interested in motor boats to see the leading makes in motion.

Almy water tube boilers.—The Almy Water Tube Boiler Company, Providence, R. I., among other orders for water tube boilers during 1904, received the following: one boiler for the steam yacht *Katrina,* of Hartford; one for the tug *Howell,* of Providence; one for the Peruvian goverment disinfecting boat; two for W. D. Forbes Company, Hoboken, N. J., to be placed on gold dredges for use in South America; one for the steamer *Sagamore,* of the Newport and Providence Railway Company, and two boilers for the Peary Arctic Club exploration ship.

Albany grease spindle cup.—This cup, which is made by Adam Cook's Sons, 313 West street, New York city, may be readily attached to the bearing by any machine. A hole through the cap and brass is bored, of sufficient size to allow the outside tube of the cup to enter the inside spindle coming into contact with the shaft. The outside tube, being shorter, will clear the shaft by from one-fourth to three-eighths of an inch. The inside spindle is then removed, the cup filled and the spindle replaced, when the apparatus is ready for use. It is claimed that the most obstinate bearing will yield when Albany grease is used, whether on slow or fast running machinery.

The Submarine Signal Company, 247 Atlantic avenue, Boston, Mass., has received the following letter from Benj. S. Grove, master of the steamship *James S. Whitney:* "We left New York Saturday, Dec. 5, and when running for Pollock Rip Shoals we heard the submarine bell on the lightship at the point a distance of about eight knots over all shoals and tide rips. The bell sounded clear and distinct. We next tried for bell coming up to lightship 54 in Boston bay. When forty-five minutes away, or at a distance of eleven knots, we first heard the submarine bell and it sounded clear and fairly strong. When forty minutes away, or at a distance of ten knots, there was no trouble in getting a strong, clear bell tone, and it could be distinguished by anyone.

Some successful advertising.—The original methods of advertising the wares W. S. Rogers wants to market, are well known to every reader of a mechanical journal. The picture of his little baby girl on the catalogue of the old Ball Bearing Company, of Boston, was a trade winning scheme, says Mr. Rogers, that built up that company from an unknown quantity to a valuable selling proposition, and his "big stick" and the rats he says, helped him to dispose of the most worthless lot of stock a man ever got loaded up with. But his rooster hatching out ball bearings in the advertising of the Bantam Manufacturing Company has been the prize winner of all. Thousands of letters from all parts of the earth have been received by the company during the past two years advising it that "the rooster is not a bantam at all," which was exactly the thing that Mr. Rogers wished to accomplish. But that the idea went beyond Mr. Rogers' aims was shown by a letter recently received from Austria which read as follows: "Will you please send us your prospectus concerning your incubators and brooders with discounts for foreign sale as by your advertisements. Yours truly, J. Swartz & Co."

NAVAL ARCHITECTURE is taught by correspondence by the Grand Rapids School of Mechanical Drawing, 361 Houseman Building, Grand Rapids, Mich. The company states that it is the only correspondence school offering this course of instruction.

LONG RUN OF A STEAM TURBINE GENERATING UNIT.—The 600 H. P. Westinghouse steam turbine generating unit in the Palace of Machinery, at the World's Fair, St. Louis, was shut down on December 2, after a continuous run of five and one-half months, while maintaining a speed under load of 3,600 revolutions per minute. The engine was found to be in perfect condition, without a trace of wear.

FALLS HOLLOW STAYBOLTS.—The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has received an order from the Baldwin Locomotive Works for several thousand feet of double-refined charcoal iron hollow bars for use on locomotives the company is building for a railroad in Brazil. The Falls Hollow Staybolt Company has built a large addition to its factory during the past year, has installed new water wheels, erected new furnaces, and made other improvements which double the capacity of its plant.

ANTI-FOULING PAINT.—The Hertzog Paint and Varnish Company, 627 Cherry street, Philadelphia, Pa., has received the following letter from Captain N. B. Watson, of the yacht *Constellation*, Beverly, Mass.: "May 24 I received a half gallon of your red anti-fouling paint as a sample with my order of cement paint, and applied it to the rudder of yacht *Constellation*. On Sept. 29 we hauled out and after being on all season, I found your paint clean and smooth. The paint looked good and fresh, not having cracked or peeled off. In my experience, what little I have used of your red paint has given the best satisfaction of any I have ever used. There is nothing I have ever used as good for a steel vessel, as Hertzog's cement paint to prevent rusting. I have used it on the yacht *Constellation* for the last twelve years."

Data Cards

So many of our readers have asked us for duplicates of the data cards which are published each month in connection with editorial articles, that we are reprinting them for the convenience of those who wish them for filing.

The cards are white and of the regulation size, three by five inches.

The service began with the cards which appeared in the June, 1903, issue.

As it is impossible to tell in advance how many cards will be issued each month, we shall make the uniform charge of

5 Cents per Card for Subscribers

10 Cents per Card for Non-Subscribers

Payment may be made each month as orders are sent in, and in postage stamps.

Sample cards sent at any time upon request of those who wish to investigate the service.

Marine Engineering

17 Battery Place, - New York, N. Y., U. S. A.

MARINE ENGINEERING
EMPLOYMENT BUREAU

Full information regarding the purposes of this Bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York city.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN

DREDGE DESIGNER AND BUILDER wanted; one who has the necessary knowledge and experience to connect himself with a well-known dredge-building concern. File No. 47.

FOREMAN FOR BOAT BUILDING SHOP who has had experience in constructing new hulls, who can attend to repair work and is familiar with gas engines. File 15.

GAS ENGINE BUILDER wanted to combine his business with a boat building and repairing shop which has marine railways and an established business. File 40.

SHEET IRON WORKERS, erecting machinists, and steam fitters wanted who have had experience in marine work. File No. 42.

SKILLED BOAT BUILDER who has had experience in handling men, and who can attend to the hull work in large launch works. File 14.

STEAMFITTER AND COPPERSMITH acquainted with plumbing, and able to make estimates; also to take charge in a general way of plumbers, coppersmiths and steamfitters. File No. 36.

SUPERINTENDENT OF BOILER DEPARTMENT wanted in well known shipyard; must be capable of figuring costs in both repair work and new work; give full experience and references. File No. 45.

YACHT AND BOAT BUILDER wanted who understands inside joiner work and who is able to superintend the building of launches and yachts under all the branches. File No. 39.

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT SUPERINTENDENT, ENGINEER OR ASSISTANT ENGINEER IN ENGINEERING WORKS. Age 28; single; of English birth; has British and American licenses and has had several years' sea experience. Application No. 23.

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CONSULTING ENGINEER AND NAVAL ARCHITECT. Married; born in Germany; had many years' experience in designing, drafting and surveying. Application No. 33.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.

12 West 31st Street, New York.

President, Francis T. Bowles.
Secretary-Treasurer, W. J. Baxter.
Executive Committee, Lewis Nixon, Edwin A. Stevens, Harrington Putnam, Stevenson Taylor. *Ex-officio*, Francis T. Bowles, W. J. Baxter.

AMERICAN SOCIETY OF NAVAL ENGINEERS.

Navy Department, Washington, D. C.

President, Commander A. F. Dixon, U.S.N.
Secretary-Treasurer, Lieutenant Charles K. Mallory, U.S.N. (retired.)
Council, Captain George W. Baird, U.S.N.; Commander J. K. Barton, U.S.N.; Commander W. M. Parks, U.S.N.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

National President, Frank A. Jones, 1959 Eddy St., San Francisco, Cal.
Vice-President, Charles W. Robinson, 908 G. St., N. W., Washington, D. C.
Second Vice-President, Evans I. Jenkins, 153 Clinton St., Cleveland, Ohio.
Secretary, George A. Grubb, 1318 Wolfram St., Lake View, Chicago.
Treasurer, Albert L. Jones, 289 Champlain St., Detroit, Mich.
Advisory Board, William F. Yates, 120 Liberty St., New York city; George F. Keating, 74 Webster St., East Boston, Mass.; W. D. Blaicher, 10 Exchange St., Buffalo, N. Y.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, W. D. Blaicher, 10 Exchange St., Buffalo, N. Y.
" 2, Wm. Kelly, 11 Wall St., Cleveland, O.
" 3, A. L. Jones, 289 Champlain St., Detroit, Mich.
" 4, James A. Macauley, 5802 Indiana Ave., Chicago, Ill.
" 5, Otto Boettger, 1035 E. Hopkins Ave., Baltimore, Md.
" 6, Wm. Arste, 322 Pine St., St. Louis, Mo.
" 7, Wm. T. McElwee, Box 1556, Portland, Me.
" 9, Wm. Bridges, 784 1-2 12th St., Milwaukee, Wis.
" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
" 14, Joseph F. Dumas, 403 Dauphin St., Mobile, Ala.
" 15, R. L. Skinner, 622 Louisa St., New Orleans, La.
" 17, Jas. D. Robinson, 6th and Columbia Sts., Newport, Ky.
" 18, Wm. Hurst, 715 Walnut St., Cairo, Ill.
" 20, Jos. B. Barry, 206 Keel St., Memphis, Tenn.
" 21, J. H. Foley, 206 N. Mulberry St., Vicksburg, Miss.
" 23, Wm. R. Lewis, 213 E. Front St., Jeffersonville, Ind.
" 24, Hugh L. Edwards, 511 Washington St., Paducah, Ky.
" 26, T. H. Kirkbridge, 228 Bond St., Evansville, Ind.
" 27, L. C. Schwall, 598 S. Madison St., Bay City, Mich.
" 29, James R. Sutherland, Charleston, W. Va.
" 30, E. R. Humphrey, 21 State St., Pittsburg, Pa.
" 33, James J. Waters, 283 Hudson St., New York, N. Y.
" 35, William M. Coombs, 36 East St., San Francisco, Cal.
" 36, Jos. Thomas, 57 Sea St., New Haven, Conn.
" 37, John B. Bender, 1215 Evesham Ave., Toledo, Ohio.
" 38, C. H. Wolford, 73 Starr Boyd Bldg., Seattle, Wash.
" 39, Frank Feeney, 460 E. 12th St., Erie, Pa.
" 40, Chas. Drouet, 1003 Ave. I, Galveston, Tex.
" 41, W. H. Marshall, 343 Holladay St., Portland, Ore.
" 42, Jas. Manning, 802 E. Duval St., Jacksonville, Fla.
" 43, A. J. Wilson, 1327 La Peer Ave., Port Huron, Mich.
" 44, Chas. J. Sullivan, 480 1st St., Manistee, Mich.
" 45, W. L. Salter, care O. S. S. Co., Savannah, Ga.
" 46, D. W. Farrell, Clayton, N. Y.
" 47, J. R. Cook, Sault Ste. Marie, Mich.
" 48, Alfred Hegemer, 140 E. Park St., Sandusky, O.
" 51, H. S. Connell, 12 Ranson St., Muskegon, Mich.
" 53, Harry Stone, Box 445, Marine City, Mich.
" 55, Archie Stalker, Box 883, Cheboygan, Mich.
" 57, E. B. Meeker, 71 Abeel St., Kingston, N. Y.
" 58, E. Capers Haselden, Box 31, Georgetown, S. C.
" 59, George F. Keating, 74 Webster St., E. Boston, Mass.
" 62, N. S. Lawrence, 30 Connecticut Ave., New London, Conn.
" 63, M. J. Burke, 152 Sheridan Ave., Albany, N. Y.
" 65, W. C. Palmer, care Consumers' Coal Co., Charleston, S. C.
" 67, James K. Dole, Saugatuck, Mich.
" 70, Charles T. Smith, 665 Commercial St., Astoria, Ore.
" 72, Wm. T. Findlay, 130 W. Bridge St., Oswego, N. Y.
" 73, E. M. Donahue, 1308 Cherry St., Green Bay, Wis.
" 75, Wm. D. Hemenway, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
" 77, John P. Hall, 1215 Huron St., Manitowac, Wis.
" 78, J. P. Burg, 2722 Minnesota Ave., Duluth, Minn.
" 80, Edward S. Welch, 338 Hamilton St., Albany, N. Y.
" 81, Jas. L. Sweeney, 206 E. Sarragosa St., Pensacola, Fla.
" 82, Fred H. Gowell, 427 Middle St., Bath, Me.
" 85, John A. Packard, 623 Merchant St., Alpena, Mich.
" 86, Sherman A. Smith, 737 Menekaunee Ave., Marinetta, Wis.
" 87, George B. Milne, 809 Fourth St., Detroit, Mich.
" 88, C. O. Chapman, S. B. Canal, Sturgeon Bay, Wis.
" 89, Geo. E. Willard, 4 Isabella St., Ogdensburg, N. Y.
" 91, A. L. McLaren, 130 W. Walnut St., Ashtabula, O.
" 92, Jos. D. Budd, Box 50, Sta. I, Saginaw, W. S., Mich.
" 93, W. J. Cook, 2220 G. St., N. W., Washington, D. C.
" 94, George R. Jones, Box 222, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, C. N. Vosburg, 6323 Patton St., New Orleans, La.
" 100, H. F. Mocine, Honolulu, H. I.
" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred. W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

Bulletin No. 1061, issued by the Fort Wayne Electrical Works, Fort Wayne, Ind., describes and illustrates multiphase induction integrating type K watt-meters.

"Eighty cents per year will pay the cost of maintenance and repairs of the Williams steam frap," says a mailing card issued by the Williams Gauge Company, Pittsburg, Pa. The trap is said to be positive and with the ability to handle a large amount of water.

The Pilley Packing and Flue Brush Manufacturing Company, 606 South Third street, St. Louis, Mo., is mailing a folder describing Pilley's combination flue brush and scraper. This folder also describes flue brushes of various sorts, flue scrapers, steam tube cleaners, flue cleaner rods, boiler brushes, and brushes for various other uses.

Cook's Metallic Packing is attractively described in a booklet issued by C. Lee Cook, M.E., Louisville, Ky. This packing is entirely metallic and steam adjustable, and it is said never wears a rod. It has very few parts and but one wearing part—the sectional babbitt ring—which it is claimed is so durable and so cheap that the cost of the packing does not exceed 10 cents per inch diameter of rod per year.

Lord's List of Trade Papers, published by the Lord Advertising Agency, Connell building, Scranton, Pa., is now ready for distribution. The directory has been prepared for free distribution among present and prospective advertisers, and also for the purpose of advertising the facilities of the Lord agency for writing and printing technical catalogues and other trade literature. Publishers are asked to advise the agency of any errors in the list, and also as to changes in rates, circulation, etc.

The preservation of ships by electrically operated doors and hatches of the "Long-Arm" system, is the subject of Bulletin No. 10, issued by The "Long-Arm" System Company, Cleveland, Ohio, which will be sent free upon application. In addition to the power doors and hatches described therein, this company manufactures navy standard ship fittings, including swinging doors, coal-bunker trimming doors, man-holes, air ports, dead-lights, deck-lights, magazine light boxes, hand-pumps, and forgings for water-tight hatches.

Boiler shop and shipbuilders' tools are the subject of a catalogue issued by Wickes Brothers, Saginaw, Mich. This firm was established in 1860, and has built some of the largest marine boilers on the Great Lakes. Among the machine tools described and illustrated in this catalogue are heavy duty rolls with balance bar, horizontal bending rolls, light shipbuilders' rolls, medium duty rolls without balance bar, heavy duty rolls showing application of an electric motor, vertical rolls, punches and shears, flanging clamps, hydraulic flanging presses, and portable hydraulic riveters.

"The Valve World" is the title of a handsomely printed and illustrated magazine published by Crane Company, Chicago, Ill. Volume I, No. 1, has just appeared, and the scope of the magazine may be seen by the subjects treated in the initial number, viz.: "Brief History of the Crane Company," "Exhibit at the Louisiana Purchase Exhibition," "The Vanderbilt Cylindrical Locomotive Tender," "Improvements in Pop Safety-Valves of Special Interest to Engineers," "Introductory of The Valve World," "Business Integrity," "History of Making Wrought-Iron Pipe," "Making Wrought-Iron Pipe by Electricity," "Steamship Minnesota," "Humidity of Artificially Heated Rooms," "Malleable Iron Flanges for Steam Pipe," "St. Regis Hotel," "A Handsome Lavatory," "Bending Cast-Iron Pipe," "Trade News." It is intended to issue The Valve World monthly, and copies will be sent free upon application to readers of Marine Engineering.

Automatic and auto-positive injectors, ejectors, and steam jet-pumps, force feed-lubricators, oil and grease cups, high- and low-water alarms, gauge-cocks, etc., are illustrated and described in 64-page catalogue No. 21, issued by the Penberthy Injector Company, Detroit, Mich. The catalogue states that the Penberthy injector has been too long on the market and is too familiar to the steam user and the steam supply trade to require any introduction. The auto-positive injector, so the company states, while less familiar, has been on the market several years, and has won recognition for its reliability under extreme conditions, while retaining simplicity of construction. By an arrangement of the overflow valves, it will work on higher pressures and handle hotter water than the Penberthy automatic. The company recommends the auto-positive injector for pressures of 140 pounds and upwards, or where the temperature of the water supply is above 110 degrees. For all other conditions the company recommends its automatic injector. In the catalogue is some useful information entitled "Some Facts to be Considered in Selecting an Injector." Engineers will find it to their interest to send for a free copy of this catalogue.

The Brown & Sharpe Manufacturing Company, Providence, R. I., is mailing its 1905 catalogue of machinery and tools. This catalogue, which has been thoroughly revised, contains 496 pages. It contains a large number of tables and general information, making it valuable to the workman as a book of reference. It will be mailed free of charge to anyone mentioning Marine Engineering.

Ball and roller bearings are the subject of a 64-page illustrated catalogue issued by the Standard Roller Bearing Company, 48th street and Girard avenue, Philadelphia, Pa. The company states that it owns and controls more than one hundred patents covering ball and roller bearings, as well as methods, processes, and machines used in making same.

Friction joint calipers, made with Cook's new beeswax joint, are illustrated and described in a folder issued by the Sawyer Tool Manufacturing Company, Fitchburg, Mass. The folder states: "The problem of properly applying beeswax to a caliper joint in a manner so that the beeswax is retained for an indefinite period, whether the tool is constantly or only occasionally used, has been successfully solved by this invention. The pockets for holding the beeswax are made in such a manner that they do not impair the utility of the joint, but rather add to it. They have that firmness of feeling so much desired by every mechanic."

Silent running high-speed chains are illustrated and described in Catalogue No. 7, issued by the Morse Chain Company, Trumansburg, N. Y. The catalogue states that for the past two years Morse silent chains have been in successful operation at speeds up to 2,000 feet per minute. "This form of transmission is compact, silent, durable, exceptionally efficient, and has a wide range of application. The Morse silent chain joint is an application of a principle new in chain construction. It has long been recognized that a rocking action between hardened steel surfaces is a perfect means of obtaining motion of parts which swing or turn upon each other through a limited angle—the precise function required in the chain. Such a joint is almost indestructible, even under enormous pressure, requires no lubrication and involves no perceptible friction or wear. In addition to all the advantages derived from this frictionless joint construction, the Morse high-speed chain also fully utilizes the silent running and compensatory features as embodied in the best modern practice."

Steam regulating devices and steam pumps, manufactured by the Mason Regulator Company, 158 Summer street, Boston, Mass., are described in a 50-page catalogue. Regarding the Mason reducing valve, the catalogue states "this valve is designed to reduce and maintain an even steam or air pressure, regardless of the initial pressure. It will automatically reduce boiler pressure for steam-heating coils, and all places where it is desirable to use lower pressures than that of the boiler. The dash-pot, which immediately fills with condensation, prevents all chattering or pounding, and requires no attention. No extra lock-up attachment is needed, as the pressure is regulated by a key, which the engineer retains. The sizes, up to and including 2-inch, are made of the best composition, and above that, of cast iron, with composition linings. In the larger sizes the composition lining is hung up in the valve, leaving a space between the iron and composition for the unequal expansion of the metals; thus there is no possibility of the piston sticking when the valve is heated. The area of the passage from the high- to the low-pressure side of the valve is equal, when open, to the full area of the pipe, so that a low pressure of the system, almost equal to the initial high pressure, may be carried. To increase pressure, turn the key in the direction taken by the hands of a watch."

L. S. STARRETT says:

"If you find any tools better than STARRETT TOOLS buy them."

Send for Free Catalogue No. 17L of Fine Mechanical Tools.

The L. S. Starrett Co.
ATHOL, MASS., U. S. A.

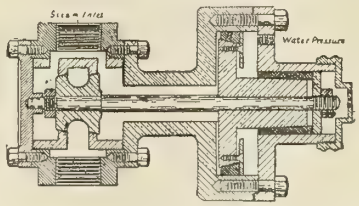
Wood finishers' supplies, leads, colors, paints, varnishes, etc., are the subject of a 36-page catalogue published by the Adams & Elting Company, 155 Washington Boulevard, Chicago, Ill.

Eccentric fittings are illustrated and described in a booklet received from W. F. Swadkins, 145 Fulton street, Chicago, Ill. This company manufactures screwed and flanged fittings (eccentric and specials), cast-iron and steel saddle flanges, valves, pipes, etc.

Wrought bar parallel-swivel vises are described in a pamphlet issued by Merrill Brothers, Brooklyn, N. Y. These vises have extra heavy jaws that cannot be broken with a hand hammer. Over 300 of them are said to be used in the Baldwin Locomotive Works. This company also manufactures one-piece, drop-forged turn-buckles, eye-bolts, etc.

"W. & B. Universal Self-Oiling Drills" are described in a circular issued by The Whitman & Barnes Manufacturing Company, Chicago, Ill. The oil is conducted to the tube, either from an elevated reservoir or a pump, and is forced to the point of the drill, flooding it, and assisting in the removal of the chips.

BY putting the Steam Pressure on one face, and the water pressure on the reduced area of the opposite face in



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CONTROLLER FOR FEED PUMPS,

a water pressure in excess of the steam pressure is maintained absolutely without regard to the fluctuations of the steam.

The large piston area renders it extremely sensitive to the slightest varation in water pressure, maintaining a high degree of uniformity in both water level and steam pressure, saving fuel and protecting both boiler and engine.

A booklet, now in preparation, will tell you all about the Mullins Automatic Controller. We want you to have a copy of that book.

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The tendency of to-day

is to use grease wherever possible, because of its reliability and economy.

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Oil vs Grease

carefully discusses the question with particular reference to

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Write for a free copy.

JOSEPH DIXON CRUCIBLE CO.

Jersey City, N. J.

Please Mention This Publication.

Automatic lubricators, chain pipe-wrenches, reversible ratchet-wrenches, belt couplings, self-lubricating plumbago packing, and other engineers' specialties, are illustrated and described in a 64-page catalogue issued by Greene, Tweed & Company, 17 Murray street, New York city.

"Diamond" marine gasoline engines are illustrated and described in a catalogue published by the H. A. Heinel Company, Wilmington, Del., which states that "our engines have been designed for moderate speeds, high efficiency, long life, medium weight, and smooth running, and they have fulfilled all our expectations. We are also prepared to design and build special light-weight engines for racing purposes to order. Our standard engines are fitted with solid one-piece, steel-forged, crank-shafts, specially adapted to the work they have to perform. Special attention is called to the manner of attaching the fly-wheels to the crank-shafts. The end of shaft to which the wheel is fastened is turned to a standard taper with the extreme end chased with standard thread to receive the large nut which is used to force the fly-wheel on. The fly-wheel is bored taper and reamed with standard reamer, key-seated, and when forced upon the shaft with the large nut, insures an absolutely tight fly-wheel. The fly-wheel also has holes drilled in the web or spokes which are tapped to receive standard bolts, so that the wheel may be drawn off in a few minutes. This does away with breaking the heads off of keys and drilling out broken keys, an occurrence that often happens with the old methods. There are special holes in the periphery of the fly-wheel for inserting the starting bar. The engine can be started with or without the bar, at the pleasure of the operator."

"Pipe and Boiler Coverings and their Uses" is the title of an illustrated booklet issued by the H. W. Johns-Manville Company, 100 William street, New York city. Engineers interested in the subject should send for a free copy of this booklet.

Reversible marine gasoline engines. Termaat & Monahan, Oshkosh, Wis., builders of two- and four-cycle marine gasoline engines, are distributing a handsome 28-page catalogue illustrating and describing their 1905 engines. The catalogue states: "We take especial pride in the design of our engines. They are symmetrical and well-balanced throughout. The fly-wheel is neither too light nor too heavy. The cylinder and head are cast in one piece, obviating any chance of leakage. The center of gravity is low, the engine being supported on the foundation near the center line of the shaft. Our improved muffler, which is attached to all our single-cylinder engines, has a number of valuable features."

Air and gas compressors.—The Rand Drill Company, 128 Broadway, New York city, has issued the fourth edition of Catalogue "C," which describes many sizes of the various types of steam (Corliss, Meyer, and plain), belt, gear, and chain-driven compressors, and includes articles on water impulse and sectional machines. There are many half-tone cuts showing the construction of the Rand standard and special compressor. The catalogue also contains articles of a semi-technical character which explain the phenomena attending the compression and expansion of air; also a number of tables of value to those interested in the study of air compression. A copy will be sent free upon request.

Stamped steel boats, manufactured by the W. H. Mullins Company, Salem, Ohio, are described in an illustrated 48-page catalogue. The catalogue states: "We build boats for pleasure or for business. We don't make them of wood. We make them of steel. Our boats do not oxidize, they do not leak, they do not wear out, they do not buckle, and they do not sink. They are smooth skinned. They have few joints and are built in plates like warships. Instead of being clinker-built they are carvel-built. There are no lap-strake joints, no starting seams, and no caulking. Each boat has its plates pressed into true shape by dies. Every boat on the same die is made alike. In all our boats is an air-tight compartment. Our boats even when upside down will not sink. These air-tight compartments may be the means of saving your life and that of your family. Foot for foot, one of our boats weighs no more than a clinker-built wooden boat, and it will outwear a dozen such boats."

"Our steam steering-gear," says a folder issued by the Dake Engine Company, Grand Haven, Mich., "has been designed to meet the wants of tug and vessel owners for a light, compact, and efficient machine for pilot-house service. It consists of two standards on a flat base, supporting a shaft carrying a chain wheel for rudder-chain, and also a hand steering-wheel. This steering-wheel shaft carries also a gear which is driven by pinion on the engine shaft. The engine is made to stop, start or reverse by means of a lever connected to the hand-wheel, which is not keyed to the shaft, but revolves loosely on same, and it requires a slight movement of the hand-wheel to port or starboard to start or stop the gear at any point. The gear may be changed from steam to hand-power in a few seconds. The gear is equipped with an automatic closing device, and with a hand-lever attached to the throttle valve. It is optional for the pilot to use this lever of the hand-wheel for steering. An indicator shows the position of the rudder at all times."

1842 Walworth

The Shadow

of the Stillson Wrench is as close to the mechanic to come as is the tool in the hands of the millions of active workers at large to-day. Where there is no

"Stillson"

there's no need for a wrench.

128 Federal Street, **Walworth Man'f'g Co.,** Boston, Mass.

1905 Walworth

The Marck steam trap is the subject of No. 1, Vol. II, of *The Houghton Brief*, "a periodical devoted to industrial supplies," published by E. F. Houghton Company, 240 West Somerset street, Philadelphia, Pa. The paper says: "The Marck steam trap depends upon neither floats, weights, balances, springs, counter balances, pet cocks, air cushions, or metal expansion, but solely upon temperature. We will send to any reliable person from one to ten traps, with the understanding that they can be returned at the end of thirty days if not satisfactory, and we will cancel the charge in full."

"Air Power," Vol. I, No. 1, issued by the Rand Drill Company, 128 Broadway, New York city, has been sent to us for notice. The editorial announcement states that the magazine will be issued quarterly, the object being to keep in touch with compressed-air users, and to educate them to feel that they may call upon the Rand Drill Company whenever they wish to ask questions or discuss any subject pertaining to the uses of compressed air. Among the articles in the first number of the new publication is a paper by J. B. Carper, M.E., which was read before the Mechanical Engineers' Association, Witwatersrand, South Africa, on "Trials of Rock Drills." The magazine is handsomely illustrated, and, we infer, will be sent free to applicants mentioning Marine Engineering.

Tools and supplies for steam, water, and gas users are profusely illustrated and concisely described in a 352-page, cloth-bound catalogue issued by the Walworth Manufacturing Company, 128 Federal street, Boston, Mass. In order to show how complete a catalogue this is, we give the subjects of the various divisions by page numbers: cast iron and malleable pipe fittings, 16 to 77; flanged fittings, pipe bends, brackets, and floor stands, 78 to 101; standard brass and iron valves and cocks, 102 to 131; special brass and iron valves and cocks, 132 to 161; engine and boiler trimmings, 162 to 189; Walworth injectors, pop safety-valves, steam-gauges, 190 to 203; steam fitters' and engineers' tools, 204 to 241; water work and hose goods, 242 to 277; steam and hot-water apparatus, 278 to 295; Walworth electric railway brackets, and Walworth gas machines and mixers, 296 to 317; miscellaneous goods and index, 318 to 352.

Marine gasoline engines are described in a handsomely illustrated catalogue issued by the Standard Motor Construction Company, 172 Whiton street, Jersey City, N. J. The catalogue states "the Standard is an internal combustion motor operating on the well-known four-cycle principle, and uses gasoline for fuel. In operation, the downward stroke of the piston draws a charge of gas and air into the cylinder, which the first upward stroke compresses into a clearance above the piston. While the piston is at the top of the stroke, the mixture is ignited by a spark, and the resulting expansion of the gases drives the piston down; the return stroke discharges the burnt gases from the cylinder, and so permits of an automatic continuance of the operation. The principle of operation of these engines is the same as in all large engines of the stationary type, and has proved the most successful principle. Our engines, while running under full load, consume one pint of gasoline per hour for each horsepower developed. When slowed down and not required to develop their full power, the automatic governor proportionately reduces the consumption of fuel. The larger sizes consume about one gallon in 10 hours per horsepower. In the methods of installation and in the operation, the Standard is absolutely safe, no fire of any kind being required in the operation or starting of the engine while the fuel is handled in such a way as to be absolutely free from the escape of gases. Through the use of the starting lever, the ignition timing lever, but one release lever for all cylinders, the automatic governor, the easy-working reverse lever, and the accessible igniter, the Standard is a most conveniently handled engine. Accessibility is one of the main features of the Standard. Every part can be instantly inspected and cleaned with ease when required, and should any small parts have to be removed, it does not necessitate taking the whole engine to pieces. The speed may be instantly changed without altering the mixture. The time of ignition may be varied in all cylinders with but one lever. The automatic vaporizer does not require adjusting for any variation of speed, nor any regulation of the air supply. Among other advantages are the following: Varying speeds may be attained by means of the automatic governor. Supply valves have air cushions. Reverse gears run in oil-tight gear case. The starting and reverse lever is easily operated. All parts are subjected to positive lubrication. The engine is smooth-running and free from vibration. The exhaust is noiseless and free from excessive heat. One man can handle the boat from the pilot house, owing to the easy operation of the reverse lever and the automatic governor. Positiveness in starting of engine. Positiveness in the operation of the engine. Large margin in power above the amount rated."

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OXIDE OF ZINC

paint is to commit a wasteful act of folly. All ship painters know or ought to know that there is no marine white except

Zinc White

FREE: OUR PRACTICAL PAMPHLETS

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"Paints in Architecture,"
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"Paint: How, Why and When,"
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CONDENSER TUBES

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"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

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WATERBURY, CONN.
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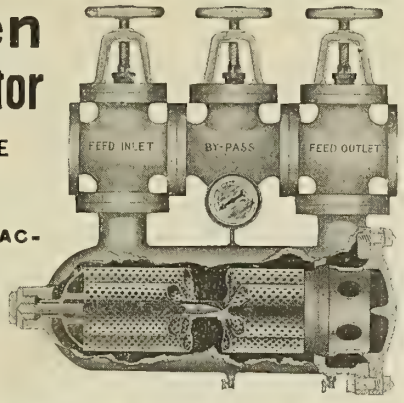
The Ebsen Grease Extractor

FOR REMOVING GREASE FROM FEED WATER

VERY COMPACT AND ACCESSIBLE. HAS LARGE FILTERING AREA DUE TO CONVOLUTIONS IN CARTRIDGE.



M'f'd. by

JAMES REILLY REPAIR & SUPPLY CO.
229-233 WEST STREET, - - - NEW YORK

The various uses of graphite.—The Joseph Dixon Crucible Company, Jersey City, N. J., is a prolific publisher of booklets describing the various uses of graphite. Among the books the company has published, and which will be sent free to readers of Marine Engineering, are the following: "Graphite as a Lubricant," "Oil vs. Grease," "Dixon's Graphite Suggestions," "The Manufacture and Care of Plumbago Crucibles," "Graphite Afloat and Afield," "Running Steam Cylinders Without Oil," "Dixon's School Pencils," "Dixon's Index for Pencil Users," and "Pencil Geography."

Lacy marine gasoline engines, built by the Brown-Cochran Company, Lorain, Ohio, are illustrated and described in a catalogue recently issued. This catalogue states that the Lacy engines "are built in many sizes in both the two-cycle and the four-cycle types. Each type has its points of advantage, depending upon the service for which it is to be used. We recommend the two-cycle for one type of boat and the four-cycle for another. The type of boat and the individual requirements of the purchaser determine, to a great extent, the type of engine. We do claim that well-designed engines of either type are equally reliable. Many intending purchasers in looking over our catalogue will be able to determine for themselves the type of engines best suited to their needs. If in doubt in this regard we shall be glad to offer suggestions based upon our wide experience. We use nothing but the best of material in all parts of our engines. Iron castings are of the best grade of close gray iron. Not a cylinder or piston casting passes inspection if it shows the slightest imperfection either before or after machining. All bearings are of the best phosphor bronze, as are also the connecting rods of the smaller size engines. Crankshafts are forged from the solid of the best mild steel. Machining is done in our special fixtures, insuring perfect accuracy. Here again we use the greatest care. Pistons are carefully turned slightly smaller at the top where subjected to the greatest heat, obviating the possibility of sticking in the cylinder. Piston rings are first turned, then square cut, then sprung together, and again turned accurately to the size of the cylinder. This process insures a perfect fitting and gas-tight ring. In all sizes 5 horsepower and larger we do not spring the rings over the head of the piston. They are merely slipped over and retained by a follower-plate which covers the head of the piston."

"A New Line of Variable Speed Motors" is the subject of "Flyer No. 253," issued by the Crocker-Wheeler Company, manufacturers and electrical engineers, Ampere, N. J.

Economy in the boiler room. The William B. Pierce Company, 321 Washington street, Buffalo, N. Y., has issued a booklet entitled "Economy in the Boiler Room," which is valuable to those interested in the economical handling of the fuel problem. This booklet deals with the causes of boiler scale and its remedy. The remedy given is the Dean boiler-tube cleaner, a mechanical cleaner which is said to have 6,000 users throughout the country, and which has been adopted, it is stated, almost universally by large corporations, the United States Steel Company using over 100, the Standard Oil Company 50, the American Writing Paper Company 14, etc. Marine engineers will do well to send for the booklet, which will be sent free to those mentioning Marine Engineering.

Sailing boats, gasoline launches, and row boats of every description, marine gasoline engines, and boat equipments of all kinds, are illustrated and described in a 32-page catalogue issued by Fred. Medart, 3530-3545 De Kalb street, St. Louis, Mo. The catalogue especially calls attention to Mr. Medart's system of supplying boat-building materials. Many testimonials appear wherein customers express their satisfaction with boats and materials purchased. The following letter written by Mr. John Kane Mills, Lawrence, Long Island, N. Y., will do as a sample: "The materials for the *Swallow*, a 24-foot racing sloop, arrived in good condition and were easily put together. Each piece was plainly marked and fitted exactly, and although I had no previous experience, I had no difficulty in building the boat. Boat builders asked me from $280 to $325 to build a *Swallow*, and with your materials I built and fully equipped her for $129.67, freight on materials included. I had no professional help, and found the lumber to be well planed and without a knot, split, or flaw. I put the materials together and painted the boat in thirty-four hours. Your materials bring boat-building within the range of amateurs and enable people of moderate means to secure a first-class boat." A copy of this catalogue will be sent free to every person mentioning Marine Engineering.

A "Treatise on Mechanical Draft" has been published by the B. F. Sturtevant Company, Hyde Park, Mass., which will be found of interest and value to those interested in that subject. The following are extracts from that work: "One of the features of the advent of electrically driven machinery has been the development of the electric fan. Originally the pulley-driven fan appeared to fulfill the requirements of the purchaser; soon, however, the steam fan with direct-connected engine displayed its utility; but to-day the fan driven by an attached motor has shown its general superiority and is rapidly supplanting the steam fan. Progress along this line has been largely due to the energy and foresight of the B. F. Sturtevant Company, of Boston. For years past they have been perfecting designs and keeping abreast of the times in this important branch of engineering. . . . W. S. Hutton, in *Steam Boiler Construction*, states that 'the economy that may be obtained by combustion with forced draft in a steam boiler is due to the increased rate of combustion and increased efficiency of the heating surfaces produced by it resulting in increased boiler power. The increase of power obtained depends principally upon the quantity of air brought into intimate contact with the fuel in a given time, but the power of the boiler may generally be increased from 40 to 100 percent by the application of well-arranged forced draft,' such as is manufactured by the B. F. Sturtevant Company."

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Marine Engineering, 17 Battery Place, New York

BUSINESS NOTES.

Highest honors for the Moncrieff gauge glasses.—The H. A. Rogers Company, 19 John street, New York city, reports that the Moncrieff Scotch gauge glasses, for which the company is the sole agent in the United States, were the only gauge glasses awarded a gold medal at the World's fair at St. Louis.

The Eureka Fire Hose Company in the South.—Mr. Warwick H. Payne, who has been connected with the Eureka Fire Hose Company, 13 Barclay street, New York city, for a number of years, has been placed in exclusive charge of the company's business in North and South Carolina and Virginia, with offices in the Century building, Atlanta, Ga.

Allen riveters for Mexico.—John F. Allen, 370 Gerard avenue, New York city, manufacturer of the Allen portable pneumatic riveting machine, who recently established an agency with A. H. Le Hand & Company, City of Mexico, has received an order from this firm for six riveters to be shipped to the Cia Consolidada de Construcciones Metalica, S. A., City of Mexico.

A satisfactory lubricant.—Adam Cook's Sons, makers of Albany grease, 313 West street, New York city, recently sent some samples of their grease to the Charleston Gas and Electric Company, Charleston, Ill. After testing same, E. C. Jenks, manager, wrote: "The samples shipped this company are all right, and we have ordered a supply from the George Henseler Oil Company, St. Louis, Mo."

Steel castings for engines.—Some steel castings received by W. D. Forbes Company, Hoboken, N. J., from the Providence Steel Casting Company, Providence, R. I., have been machined for some special work where the closest inspection was necessary. These castings turned out to be perfect, and many cast-iron parts which W. D. Forbes Company is now using will hereafter be made of steel made by the Providence Steel Casting Company.

A popular variable speed-motor.—The Northern Electrical Manufacturing Company, Madison, Wis., reports that it has found extensive sale for its single-voltage, two-wire, variable speed-motors in all lines of industrial work. The field of the variable speed-motor is primarily the machine shop, as no other line of work calls for so many individual machines. However, Northern variable speed-motors are used in all kinds of industries for operating pumps, for boiler feed, circulation, etc, for ventilating and blowing fans, elevators, hoists, and conveyers. An extensive field for Northern variable speed-motors has been found in the cement industry, where variable speed drive is said to be especially advantageous.

An interesting yacht lighting exhibition.—The Richardson Engineering Company, Hartford, Conn., had on exhibition at the Motor-Boat Show, Madison Square Garden, New York city, a section of a yacht showing the interior of the cabin and engine room, with port lights, curtains, cushions, and pillows, all in position as they would be in a real yacht. There was in operation one of the company's No. 2-B electric light outfits, consisting of a generator belted to the engine, a storage battery in the locker, and switchboard in place connected to an arc searchlight, which was operated at intervals. The company's No. 2-B-5 switchboard was a complete yacht switchboard for the use of a storage battery large enough to operate arc searchlights at all times. It had a pilot-house, volt-meter, ammeter, volt-meter switch, regulating switch for the storage battery, rheostat, automatic circuit breaker, and tell-tales for indicating whether the side lights were burning or not. The exhibit also included a number of standard yacht and launch switchboards, and special electric fixtures as well as ignition storage batteries, besides a direct-connected set consisting of an imported De Dion motor direct-connected to a standard dynamo on an iron bed. This is very compact and is suitable for large launches, houseboats, sailboats, and like purposes where space is at a premium and lightness an advantage. There were also in operation a 9-inch lens mirror arc searchlight and a 12-inch incandescent searchlight.

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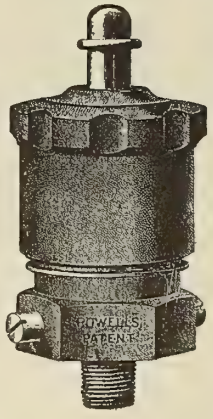

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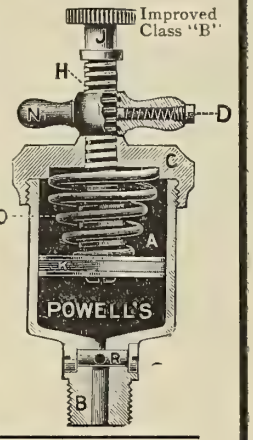

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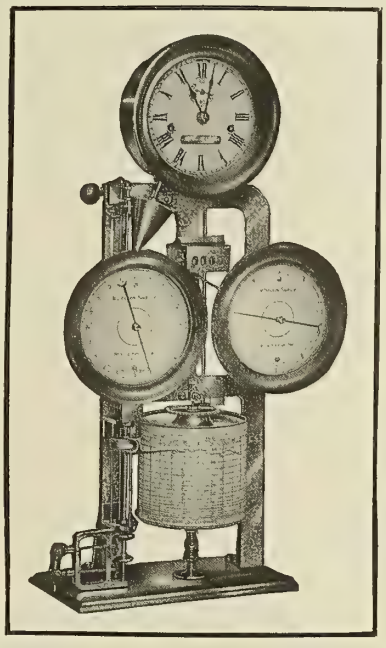

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An efficient double chamber furnace.—Regarding its double chamber melting furnace, the Rockwell Engineering Company, manufacturer of rotary melting furnaces for copper, brass, bronze, aluminum, etc., 26 Cortlandt street, New York city, states that all the features of its furnace appeal to the practical foundryman, but none more so than its operation. With the possible exception of the lining more care was given to the operation than to any other feature. The first aim of the company was to produce a furnace that would melt rapidly, after this was accomplished every effort was put forth to make the furnace perform its work with every possible convenience and comfort for the operator. The operator likes the furnace because it melts rapidly and in large quantities, thus insuring economy and ease in operation.

Medium-sized fast passenger steamers.—The Marine Iron Works, Station A, Chicago, Ill., state that the new steamer they are now building for quick passenger service on northern Lake Michigan, represents a type of boat worth careful consideration by anyone interested in this subject. They refer to the best modern steam vessels, ranging from 75 to 160 feet in length. The one referred to has a finely modeled steel hull 142 feet long by 28 feet beam, and will draw with ordinary load 11 feet. Her triple-expansion machinery embodies all the practical features that long experience demonstrates is the best when actual worth rather than first cost is the prime consideration. The engine cylinder diameters will be 14 and 22 and 36 inches by 24 inches stroke fitted with steam reverse. These modern, quick-moving, medium-size dependable vessels on eight- to twelve-hour daily runs are far better producers than generally understood, and are gradually supplanting the old and slower-moving combination freight, tug, and passenger boats. Their first cost is necessarily greater, but generally the net results are in their favor before the close of even one season's business. The Marine Iron Works have also been awarded the contract for building the fore-and-aft compound condensing machinery for the new government survey boat for use on the Gulf of Mexico.

The Altemus timer and secondary distributor.—C. L. Altemus & Company, The Bourse, Philadelphia, Pa., state regarding their timer and secondary distributor that its distinctive features are its simplicity, strength, and accuracy. But one coil is used, vibrating or non-vibrating, for any multiple cylinder engine, and since the entire system of battery, coil, connections, etc., finds expression in a single spark, explosions of maximum efficiency are produced with small battery consumption. The firm state that in nine cases out of ten the unsatisfactory behavior of a gas engine is due to the electrical wiring and connections, which grow more complicated as the number of cylinders increases. The employment of a coil for each cylinder means a complete circuit with all its accessories to produce a spark in any one cylinder. Multiply this by the number of cylinders your engine has, and the complication is apparent. To be successful in operation, a commutator of this character should be carefully and substantially constructed. It must be carefully laid out and put together so that the contacts are made at exactly the right time with regard to the position of the piston in the cylinder. It must be provided with long bearings, so that the proper alignment of the revolving parts and brushes will be maintained at all times, and it must be carefully insulated and made oil- and water-tight so that the chances for short circuiting will be reduced to a minimum. The Altemus device, so the firm states, fulfills all of the above conditions, and within the space of 3 inches by 2 3-4 inches.

The National Association of Engine and Boat Manufacturers, with headquarters at 314 Madison avenue, New York city, was incorporated in May, 1904, by a number of the leading manufacturers of motors, boats, and accessories, who appreciated the growing need of co-operation and concerted action for the advancement of the industries which the association represents. The association has been very successful, and now includes among its members nearly all the leading motor and launch builders in the country. The objects of the association are the promotion and protection of the interests of its members; protection against unscrupulous agents, buyers, etc.; the protection of its members against unjust and adverse legislation; to avoid questionable advertising schemes, and to discuss improved methods of construction. The association was not organized for the purpose of increasing prices. In the matter of legislation, a very important matter to users of motor boats, the association will always be found safeguarding the interests of boat users. Through its bureau of information is distributed much information of general interest to manufacturers and operators of power boats, and in bringing about an annual national exhibition, it gives the public the opportunity of becoming acquainted with the various makes of motor boats, and to study and compare the leading makes of engines and hulls under one roof. The officers of the association are as follows: President, John J. Amory; first vice-president, H. A. Lozier, Jr.; second vice-president, Charles A. Strelinger; third vice-president, Henry R. Sutphen; treasurer, J. S. Bunting; secretary, Hugh S. Gambel.

A SUCCESSFUL ENGINE.—The International Power Vehicle Company, Stamford, Conn., has received the following letter from The Miller Plantation Company, 349 West 26th street, New York city: "The *Ina* and International kerosene engine is a great success. Anderson took her for a trip up to San Juan Evangelista, and is much pleased with her. When I went down to Tlacotalpam I made the distance of 80 miles in about eight hours. The Buena Vista Company has a launch on the river with a 24 horsepower triple-expansion gasoline engine which cost $4,000 gold. We overtook and passed her on the river as though she were standing still. They used $43.00 Mex. worth of gasoline between Tlacotalpam and here. We used $7.50 Mex. worth of kerosene, and did it in less than half the time. As the boat has been in almost constant service for nearly one year and has given perfect satisfaction, we take pleasure in reporting as above."

MANY ORDERS FOR SAILS.—Wilson & Silsby, Rowe's Wharf, Boston, Mass., have orders for suits of sails for the following yachts: 25-footer, Dr. Franklin Dexter; 25-footer *Babs*, E. B. Alford; 21-footer, R. E. Gregg; 18-footer *Broncho*, Charles Este; 30-footer *Ursula II*, Albert Stone; 21-footer, F. T. Catlin; 21-footer *Jack Rabbit*, W. H. Bradbury; 25-footer, A. C. Crawford, Nassau, Bahamas; 18-footer, Huntington Manufacturing Company; schooner *Agatha*, W. S. Eaton; iceboat, Archibald Rogers; 42-foot schooner, C. E. Gibson; 35-footer *Vayer II*, Dr. R. H. Hart, Philadelphia; eight suits for 15-footers, George Lawley; 35-foot yawl, Charles Longstreth, Philadelphia; 30-footer and 15-footer, Burgess & Packard; 21-footer *Tartan*, A. H. Pirie; 22-footer, Dr. E. W. Galvan; 22-footer, George Lawley; mainsails for R. H. Post, Porto Rico, and schooner *Hoosier*, Edgar Harding; No. 2 jib topsail for schooner *Chanticleer*, George W. Weld; spinnaker for Henry H. Palmer, San Diego, Cal., and set of awnings for steam yacht *Narada*, Vice-Commodore Henry Walters, New York Yacht Club.

Data Cards

So many of our readers have asked us for duplicates of the data cards which are published each month in connection with editorial articles, that we are reprinting them for the convenience of those who wish them for filing.

The cards are white and of the regulation size, three by five inches.

The service began with the cards which appeared in the June, 1903, issue.

As it is impossible to tell in advance how many cards will be issued each month, we shall make the uniform charge of

5 Cents per Card for Subscribers

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Payment may be made each month as orders are sent in, and in postage stamps.

Sample cards sent at any time upon request of those who wish to investigate the service.

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EMPLOYMENT BUREAU

Full information regarding the purposes of this Bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York city.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN

DREDGE DESIGNER AND BUILDER wanted; one who has the necessary knowledge and experience to connect himself with a well-known dredge-building concern. File No. 47.

GAS ENGINE BUILDER wanted to combine his business with a boat building and repairing shop which has marine railways and an established business. File 40.

SUPERINTENDENT OF BOILER DEPARTMENT wanted in well known shipyard; must be capable of figuring costs in both repair work and new work; give full experience and references. File No. 45.

YACHT AND BOAT BUILDER wanted who understands inside joiner work and who is able to superintend the building of launches and yachts under all the branches. File No. 39.

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CHIEF DRAFTSMAN OR SUPERINTENDING ENGINEER seeks position. Has had extensive experience in several of the best known shipyards, and can furnish the best of references. Application No. 81.

CHIEF DRAFTSMAN OR CHECKER seeks position; is 36 years old; married; was with the Carnegie Steel Company for about three years; later with the National Steel Company, and with the American Bridge Company. Application No. 79.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL. Age 25; married; 9 years' experience in leading yards in drafting, testing materials, surveying, etc. Application No. 54.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

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" 75, Wm. D. Hemenway, Alexandria Bay, N. Y.
" 76, Orson Vanderhoef, Grand Haven, Mich.
" 77, John P. Hall, 1215 Huron St., Manitowac, Wis.
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" 92, Jos. D. Budd, Box 50, Sta. I, Saginaw, W. S., Mich.
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" 95, P. J. McMahon, Box 199, Key West, Fla.
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" 101, J. K. Cotton, Box 765, Norfolk, Va.
" 102, Fred. W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

The Brennan standard motor, for launches and automobiles, is described and illustrated in a catalogue issued by the Brennan Motor Company, Syracuse, N. Y.

Elevators, towers, over-head trolleys, conveyors, coal-crackers, cable railways, industrial railways, blocks, ropes, etc., are described in Pamphlet No. 052 issued by C. W. Hunt Company, West New Brighton, Staten Island, N. Y.

"Economical Gas and Oil Engines" is the title of a folder sent out by the De La Vergne Machine Company, foot of East 138th street, New York city. The company will send free upon application a description of its portable and fixed engines with pumps, dynamos, or air compressors.

Lathe chucks.—A catalogue of Westcott's patent lathe chucks and "Little Giant" drill chucks, manufactured by the Westcott Chuck Company, Oneida, N. Y., has been received. The "Little Giant" drill chucks have no projections. The jaws and screws are all within the body of the tool.

The bending book issued by Estep & Dolan, Sandwich, Ill., explains how any shop doing much bending work can save money. The eye-hand bending machine is claimed to do this. Other machines built by this company are sheet-metal shears and angle benders operated by hand.

"The Economy of Clean Boilers, a practical method of dealing with the expenses due to the neglect of boilers," is the subject of a pamphlet issued by the Greacen-Derby Engineering Company, Perth Amboy, N. J. The pamphlet states that the secret of success in steam boilers is clean water, and goes on to describe and illustrate the Blackburn Smith feed-water filter and grease extractor.

Thor pneumatic tools and appliances are described in a folder issued by the Aurora Automatic Machinery Company, Aurora, Ill. The Thor air-drills are fitted with reciprocating piston, Corliss-style valves, and telescopic feed. Various air-drills are shown, and also pneumatic hammers. These drills and hammers are claimed to develop the maximum power for a given consumption of air.

A new sketching paper for making drawings and sketches in isometric perspective, is for sale by the Derry-Collard Company, 256 Broadway, New York city. A circular issued by the company states "any special knowledge of isometric projection is now unnecessary, inasmuch as Dr. Robert Grimshaw has devised a ruled paper on which isometric drawings may be made without fuss or calculation."

Steam turbine motors, dynamos, blowers, centrifugal pumps, marine generating sets, etc., are described in illustrated Catalogue B, issued by the De Laval Steam Turbine Company, Trenton, N. J. This company is the sole manufacturer in the United States, Mexico, and Central and South America of the De Laval patents. Besides this catalogue the company issues a number of booklets which will be forwarded upon application. Among them are catalogues describing "Steam Turbines and Turbine Machinery," "Test of 300 H. P. Turbine-Dynamo," "Steam Turbine Dynamos," "Steam Turbine Motors," "Steam Turbine Centrifugal Pumps," and "Works and Product of the De Laval Steam Turbine Company."

Boiler shop, rolling mill, steel works, tube mill, and bridge-works' machinery and equipments are described in a 172-page catalogue issued by the Fischer Foundry and Machine Company, Pittsburg, Pa. This is a handsome catalogue containing nearly two hundred illustrations, yet the company states that it illustrates only a limited number of the machines it builds. In most cases only one machine of each type is shown. In addition to the line of machinery illustrated in the catalogue, the company is prepared to build special machinery for any purpose. The company will furnish upon application illustrations or drawings and other data of machinery included in the classes shown in the catalogue but not therein listed.

Portable tools for repair shops are illustrated and described in a 36-page catalogue issued by H. B. Underwood & Company, 1025 Hamilton avenue, Philadelphia, Pa. Regarding the company's portable boring bar, the catalogue states that it is made in several sizes and is designed for general boring. All kinds of engines, steam hammers, pumps, blowing engines, air compressors, Corliss valves, etc., can be bored in place. It has fixtures for boring—with one or both cylinder heads off—in any position and in cramped places, as on board ship. It can be operated in any space that is large enough to take the piston out of the cylinder. Cylinders may be rebored in place in less time than they could be removed from fixed position, leaving steam connections, holding-down bolts, etc., intact. The bars are powerfully geared and may be driven by power or by hand.

When writing to advertisers please refer to Marine Engineering.

Pnuematic hammers are the subject of an illustrated mailing card sent out by the Ingersoll-Sergeant Drill Company, 26 Cortlandt street, New York city.

Vertical milling machines are described and illustrated in Catalogue No. 40 issued by the Newton Machine Tool Works, Philadelphia, Pa.

Lathe chucks and "Little Giant" drill chucks are described and illustrated in Catalogue A, issued by the Westcott Chuck Company, Oneida, N. Y.

The nautical almanac for 1905, issued by Riggs & Brother, 310 Market street, Philadelphia, Pa., will be found valuable to mariners, and will be forwarded by the company postpaid upon receipt of ten cents.

"Reduction of Load on Steam Engines," is the title of an article by W. H. Wakeman, which is running in *Graphite,* published by the Joseph Dixon Crucible Company, Jersey City, N. J. Free copies will be sent upon application.

"Vortex" centrifugal pumps are illustrated and described in a booklet issued by the Lawrence Pump and Engine Company, Lawrence, Mass. The booklet states that these pumps are suitable for pumping out dry-docks and for wrecking and dredging purposes, and that they may be used in any place where water is to be elevated to a moderate height quickly and cheaply.

The Thompson damper and pressure regulator is the subject of a catalogue issued by Richard Thompson & Company, 126 Liberty street, New York city. The catalogue states that this regulator will open or close the damper on a variation of one pound of steam, or will make a partial stroke in either direction, and stand at any intermediate point between the open and closed positions.

Forgings and castings, armor plate and ordnance material, and bar-steel of every description, are described and illustrated in a catalogue issued by the Midvale Steel Company, Philadelphia, Pa. The catalogue states this company furnished all the engine-forgings and shaftings in the following ships: U. S. battleship *Nebraska;* the *Sierra, Sonoma,* and *Ventura,* owned by the Oceanic Steamship Company; the *Siberia* and *Korea,* belonging to the Pacific Mail Steamship Company; and the Great Northern Steamship Company's *Minnesota* and *Dakota.*

Flexible steel-armored hose. for steam or compressed air, is described and illustrated in Bulletin No. 505, issued by the Sprague Electric Company, 527 West 34th street, New York city. The bulletin states that the company's flexible steel-armored hose consists of a rubber hose covered with a tight-fitting flexible steel armor, thus protecting the rubber against injury. The strength of the hose is greatly increased because the steel armor binds the rubber hose, preventing it from expanding. A three-ply hose thus armored, the bulletin states, will stand a hydraulic pressure of 2,000 pounds.

"The Dixon Belt Dressing" is the title of a booklet issued by the Joseph Dixon Crucible Company, Jersey City, N. J., which deals with the subject of the care and renewal of belts—the causes of their slipping from overloading, clogging up, glazing, or drying out. The question of slack belts and overtight belts is also dealt with. The work concludes with an investigation of the belt dressings now employed, vegetable and animal oils, resin, waterproof dressing, etc. The advantages of Dixon's belt dressing are pointed out, and directions given for its application. A free copy of the book may be had upon application.

Welding of broken bosses on rolls.—The Goldschmidt Thermit Company, 43 Exchange Place, New York city, has issued a pamphlet describing the welding of broken bosses on rolls by means of thermit. The advantage of their process, the company states, lies in the fact that thermit can be ignited on the piece direct, the expense of a crucible being obviated. This operation takes about thirty pounds of thermit to the square foot, and a steel boss can be welded on a cast-iron roll, as well as a cast-iron boss, and *vice versa.* The testimonials in the pamphlet indicate some of the works which have used this process, which is said to be in general use in Europe.

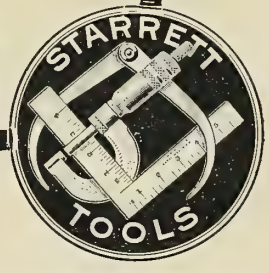
The Navigator's or Mariner's Guide.—The second edition of *The Navigator's or Mariner's Guide* will be issued in a few days. It is published by Mr. Harry Louderbough, proprietor of the New Jersey Paint Works, Jersey City, N. J., and will be mailed to those interested on receipt of 25c. in stamps or silver to defray cost of mailing. The work has been enlarged and revised by Captain R. M. Pugsley, and contains a great amount of practical matter regarding navigation, seamanship, etc.; also many fine illustrations, some of which show the method of reading the various nautical instruments. The drawings and the work in general are of great value to navigators. Capt. Pugsley has contracted with the New England Company, Bath, Me., for the building of a barkentine which he will command.

L. S. STARRETT says:

"If you find any tools better than STARRETT TOOLS buy them."

Send for Free Catalogue No. 17L of Fine Mechanical Tools.

The L. S. Starrett Co.
ATHOL, MASS., U. S. A.



The B. & S. Drop-Forged Rod and Yoke Ends

are forged of the Best Steel for the purpose, and are listed in Standard Sizes in Circular E.

Builders of Marine Motors can be supplied promptly with this Material from Stock,

THE BILLINGS & SPENCER CO.
HARTFORD, CONN., U. S. A.
MAKERS OF
Drop-Forgings of Every Description.

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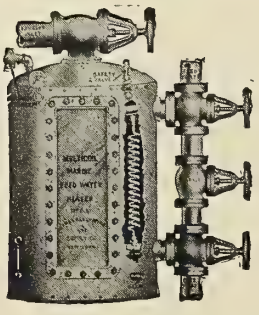
TRADE MARK

MULTICOIL Marine Feed Water Heater



MORE EFFICIENT THAN A JET HEATER.

ONLY ONE PUMP REQUIRED.

WORKS ENTIRELY AUTOMATIC.

CAN BE LOCATED ANYWHERE CONVENIENT TO FEED LINE.

M'f'd. by JAMES REILLY REPAIR & SUPPLY CO.
229-233 WEST STREET, - - NEW YORK

The tendency of to-day

is to use grease wherever possible, because of its reliability and economy.

Dixon's new Booklet

Oil vs Grease

carefully discusses the question with particular reference to

Dixon's Ticonderoga Graphite Greases

Write for a free copy.

JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

Please Mention This Publication.

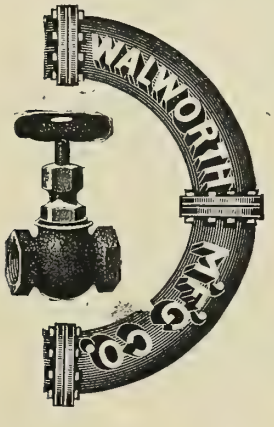
"Compressed Facts About Compressed Air" is the title of a booklet issued by the Clayton Air Compressor Works, 114 Liberty street, New York city, giving "a resumé of the points to be considered in buying an air compressor of medium capacity."

The marine gasoline engines built by the Rochester Gas Engine Company, Rochester, N. Y., are described in an illustrated catalogue this company is distributing. The catalogue states: "It is our desire to manufacture an engine that is simple to operate and at the same time efficient in its operation. Any gas engine can be readily understood and is very simple to the man who is thoroughly acquainted with gas engines in general, but to the man who is a novice, it is quite another proposition, and as the great majority, especially the smaller sizes of these engines, are operated by those whose knowledge of gas engines is limited, we are of the opinion that the simpler the engine and the easier it is understood the more efficient and reliable it will be at all times. Owing to the construction of some types of engines, it is necessary to have many intricate moving parts which constantly require adjustment and attention, and we have known cases where engines have had to be returned to the manufacturer for the reason that the owner could not be given sufficient instruction at long range to properly adjust parts that had become deranged. To avoid the above and other difficulties, which continually arise, we are building an engine of the *three port type*, which is the acme of simplicity and perfection, not having a single moving valve or spring in its make-up, and this feature alone, when compared with the many parts necessary for the operation of valves, ignition apparatus, etc., immediately recommends itself to the purchaser, who is in search of a gas engine whose troubles are few and which will operate economically and successfully."

"Our specialty is speed wheels," is the statement made by the Michigan Motor Company, Grand Rapids, Mich., in an illustrated circular it is sending out. It is further stated that "one hand controls them perfectly. All wheels are made of special propeller wheel bronze, which is non-breakable."

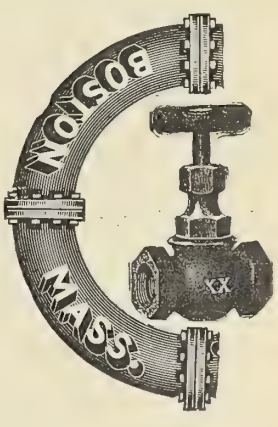
Pennsylvania metallic packing is described in a folder issued by the Pennsylvania Metallic Packing Company, 209 Robinson street, Allegheny, Pa. The folder states that this packing is composed of a combination of the finest bearing metal obtainable and a well-known lubricant. Thin strips of babbitt metal coated with Dixon's flaked graphite are wound into moulds and pressed to the ring form required to suit the conditions of the stuffing-box. These complete rings are then parted into segments. It is claimed for this packing that it is unaffected by the action of acid, alkali, oil, or sulphurous water; that it will not cut or score rods or plungers; that it does not attract, nor will it retain, grit; that it is self-lubricating; that it reduces friction to a minimum, and that it will pack for any service in which the temperature is below 450 degrees.

Marine gasoline engines are described and illustrated in a catalogue issued by the Eagle Bicycle Manufacturing Company, Torrington, Conn. The catalogue states: "We take pride in the finish of our engines. Where a piece of machinery is subjected to exposure, durability of finish is of the utmost importance. The finish applied to the cylinder and crank-base of our engine is a durable and brilliant black enamel. This makes a fine finish, impervious to heat or grease. All nickel plating is done over a heavy coating of copper. We produce an engine with all parts so mechanically perfect as to be interchangeable. New parts may be ordered and fitted to the engine without annoyance or delay. The main bearings, or crank-boxes, are of phosphor bronze accurately machined. The main connecting rod and the eccentric connecting rod are of the same material. The crank-shaft is drop forged of a high quality steel. The cylinder head, as well as the side walls of the cylinder, is surrounded by a water-jacket, keeping the entire top of the engine cool to the touch. In our 1905 sparking device we have embodied some new mechanical features. We use the make-and-break contact system with an improved method for bringing the contact points together under compression. This being a vital part, we have spared no expense in designing a sparking device which would be easily understood, neat in appearance and of the finest workmanship. The sparking mechanism is placed on the front of the engine. Both the firing pin and movable electrode are contained in one plate which make them easy of access, so they can readily be detached. With our new devices we can instantaneously regulate the speed of our engine to almost any given number of revolutions per minute and the engine will run steadily at these various speeds without missing explosions. This perfect speed control is obtained without in any way interfering with the vaporizer, which, when once adjusted to form a perfect mixture, need not be changed. The speed is controlled by new and simple devices, giving an instantaneous and wide range in time of spark ignition, with relation to the position of the piston; and in connection therewith we use a throttle-valve by which the amount of gas mixture admitted into the explosion chamber can be regulated to a nicety. Safety in a boat demands that the speed should be subject to quick control. Many gas engines cannot be slowed down except by weakening the mixture of gas and air at the vaporizer. The main bearings of our engine are self-oiling. The bronze bearing sleeves are slotted and a felt wick adapted for the purpose is inserted, which absorbs and transmits the oil directly to the surface of the shaft."



Mr. Engineer

you should prove your purchases. Get your evidence from the balances. When you've got your weight-value fixed, then see that the thick-and-thin of it means the wear and tear that your money should cover. The sixty- three years of our business life were spent in giving you the solid values that will stand any test. The kinds of Valves we make are limited only by the needs of Steam, Water and Gas work.



WALWORTH MFG. CO., - BOSTON

Pipe-fitters' tools.—The "Blue Catalogue" of pipe-fitters' tools, showing the complete line issued by the Walworth Manufacturing Company, 128 Federal street, Boston, Mass., will be sent free upon application.

The Blue Book of American Shipping for 1905 has been issued by the Penton Publishing Company, Cleveland, Ohio. This is a volume of 500 pages, and according to a circular contains "complete and authentic data and statistics covering every phase of America's marine and shipping interests."

Yacht designs free.—A handsomely printed book containing about forty selected designs of yachts, from 100 feet in length down to launches 18 feet long, will be sent free to any reader of Marine Engineering by the Michigan Motor Company, Grand Rapids, Mich., on condition that twenty-five names of boat owners, or possible boat owners, are sent the company with the request for the book. The price of the book if sold separately is $1.

Seamless drawn brass and copper tubes, etc.—The 1905 catalogue issued by the Waterbury Brass Company, Waterbury, Conn., contains tables and weights of seamless drawn brass and copper tubes, brazed tubes, brass and copper in rod, wire, and sheets; also tables which are short cuts in arriving at certain results in figuring outside and inside diameters of seamless tubes for the weights, and also in connection with rod, wire, and sheet brass and copper. The catalogue contains a complete list of the stock carried in the company's Waterbury and Providence warehouses.

Air compressors.—The Rand Drill Company, 128 Broadway, New York city, has issued two air compressor catalogues, Nos. 10 and 11. No. 10 describes the "Imperial" Type 10 steam, belt, gear, and silent chain-driven air compressors, giving speed capacities, air pressures, horsepowers, etc., and is illustrated with half-tone cuts. Catalogue No. 11 illustrates and describes "Imperial" Type 11 machines, which are vertical compressors built for driving by belt, gear, and silent chain.

"Flange Joint Gaskets" is the title of an illustrated pamphlet issued by the H. W. Johns-Manville Company, 100 William street, New York city. This pamphlet states: "To successfully pack a flange joint, a gasket is required that will withstand the highest temperature and pressure; will be sufficiently elastic to compensate for the expansion and contraction; in itself is not subject to expansion or contraction due to changes in temperature; will maintain a perfectly tight joint against the vibration of the line; will prevent leakage of steam or condensation. "Kearsarge" flange joint gaskets meet every one of the foregoing requisites for an efficient, durable gasket, and are constantly overcoming difficulties where all others have failed. Since we placed them on the market a year ago their sale has grown very rapidly. Many of the largest steam fitters in the country have adopted them as standard, and we have had no unsatisfactory reports from their use where properly applied."

The marine gasoline motors built by the Lamb Boat and Engine Company, Clinton, Ia., are concisely described and handsomely illustrated in Motor Catalogue D, a free copy of which will be forwarded upon request. The catalogue states: "In presenting our 1905 catalogue we wish first to call attention to three of the factors that have been largely instrumental in our success. These are: progress in design and development; high quality of construction and appearance; and fair dealing with our customers. We are building two types of marine motors, the two-cycle type, in sizes from 1 1-2 to 10 horsepower, and especially recommend this type for small pleasure launches. The Lamb four-cycle motors are built in sizes from 10 to 60 horsepower, in two, three, and four cylinders. We frequently find the wish expressed for fuller information in regard to the principles of action, cost of operation, and stability of two- and four-cycle motors. We have tried in this catalogue to avoid going into a lengthy discussion, and at the same time to make all the essential points clear. If we have failed in the latter, we shall be pleased to take up the point with you by correspondence."

CATALOGUES AND CIRCULARS FREE.

Catalogues and circulars were distributed at the recent Motor Boat and Sportsmen's Show, held in Madison Square Garden, New York city, by the following concerns, and free copies of them may be obtained by writing to the companies at the addresses given, and mentioning Marine Engineering.

Marine oil engines.—A. Mietz, 128 Mott street, New York city.

Lacy marine gasoline engines.—The Brown-Cochran Company, Lorain, Ohio.

Victor non-corrosive silver.—The Victor Metals Company, East Braintree, Mass.

Walrath gas engines.—The Marinette Gas Engine Company, Chicago Heights, Ill.

Self-clearing propellers.—The Norwalk Brass Company, Norwalk, Conn.

SEE THE
LEAD TEST REPORT

At the Master Painters' Convention in Milwaukee. It proves that OXIDE OF ZINC as a paint pigment "is in a class by itself" for beauty and durability.

In white or tinted paints there is no permanence of color or material without

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FREE
OUR PRACTICAL PAMPHLETS:
"The Paint Question"
"Paints in Architecture"
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"French Government Decrees"
"Paint: How, Why and When"

THE NEW JERSEY ZINC CO.
71 BROADWAY - NEW YORK
We do not grind zinc in oil.
List of manufacturers of zinc white paints furnished on request

CONDENSER TUBES
last longest if made of
"BENEDICT-NICKEL"

ELECTROLYSIS is positively resisted because "Benedict-Nickel" is an alloy of nickel and copper.

CORROSION is impossible, as the tubing is so perfectly homogeneous.

Our treatise on "Electrolysis of Condenser Tubes" is very valuable and costs you nothing. Send for it.

BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
New York, 253 Broadway Boston, 172 High St.

IMPORTANT ANNOUNCEMENT

OUR readers will be gratified to learn that the great work upon which the Scientific American Compiling Dept has been so long engaged is at last completed. After years of patient labor and research and with the co-operation of America's foremost scholars and experts,

THE NEW AMERICANA

stands as an achievement which has already met with the enthusiastic approval of the American people.

The AMERICANA is the work which the condition of affairs in the Encyclopedia world made necessary. Before ever a line was written for this great work the *Ideal* was set: *A National Work - Universal in its Information—American in its production.*

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CUT OUT AND MAIL TO-DAY

Marine gasoline engines and launches.—Palmer Brothers, Cos Cob, Conn.

The Shaw propeller.—The Shaw Propulsion Company, 52 Broadway, New York city.

Marine gasoline engines.—The Clifton Motor Works, 234 East Clifton avenue, Cincinnati, Ohio.

White gasoline engines.—The Globe Iron Works, Menomonie, Wis.

Kerosene engines.—The International Power Vehicle Company, Stamford, Conn.

Rice marine engines and launches.—John V. Rice, Jr., & Co., Bordentown, N. J.

"Western" marine engines and launches.—The Western Launch and Engine Works, Michigan City, Ind.

Gasoline marine engines.—The Buffialo Gasolene Engine Company, 1280 Niagara street, Buffalo, N. Y.

Standard dry cells and auto gas.—William Roche, 52 Park Place, New York city.

Marine gasoline engines.—Smith & Mabley, Inc., New York city.

Engineering specialties.—The Lunkenheimer Company, Cincinnati, Ohio.

Marine gasoline engines.—The Spaulding Gas Engine Works, St. Joseph, Mich.

Marine motors.—Louvet & Son, Woodhaven, N. J.

Electric light outfits and searchlights for yachts and launches. The Richardson Engineering Company, Hartford, Conn.

Magnetic liquid indicators for gas-engine tanks. The R. & C. Indicator Company, Bridgeport, Conn.

Edison primary batteries.—The Edison Manufacturing Company, Union Square, New York city.

Marine motors.—The Trebert Auto and Marine Motor Company, Rochester, N. Y.

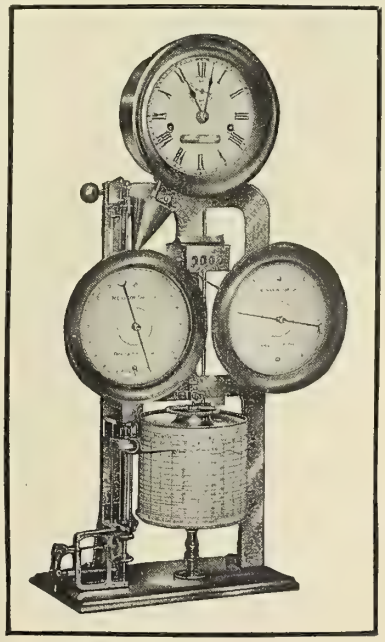
Snecker gasoline engines and launches.—The Stamford Motor Company, Stamford, Conn.

Double tube injectors.—The Schutte & Koerting Company, 12th and Thompson streets, Philadelphia, Pa.

Marine gasoline engines, auto boats, yachts and launches.—The Standard Motor Construction Company, 172 Whiton Street, Jersey City, N. J.

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

Nicholson Ship Log Co.

204 Superior Street, Cleveland, Ohio

Marine gasoline engines.—James Craig, 556 West 34th street, New York city.

Gas engines.—Warren H. Jeffers, 373 Canal street, New York city.

Forstner bits for wood-working.—The Progressive Manufacturing Company, Torrington, Conn.

Marine steam and gasoline engines, launches, yachts, and working boats. The Lamb Boat and Engine Company, Clinton, Iowa.

Marine gasoline engines and launches.—The Lozier Motor Company, 1 Broadway, New York city.

Marine gasoline engines and launches.—The Truscott Boat Manufacturing Company, St. Joseph, Mich.

Launches, yachts, and auto boats.—The Williams-Whittelsey Company, Long Island City, N. Y.

Marine gasoline engines.—The Mianus Motor Works, Mianus, Conn.

Marine gasoline engines.—The Hubbard Motor Company, Middletown, Conn.

Swasey, Raymond & Page, naval architects, Colonial Building, Boston, Mass., circulars showing designs of launches designed and for sale by them.

Magnetos for touch and jump-spark ignition.—The Remy Electric Company, Anderson, Ind.

Marine hardware.—C. D. Durkee & Co., 2 South street, New York city.

Marine reverse gears.—The Carlyle Johnson Machine Company, 356 Asylum street, Hartford, Conn.

Marine gasoline motors.—E. H. Godshalk & Co., 23d street and Hamilton avenue, Philadelphia, Pa.

Gasoline engines and launches.—The Lozier Motor Company, 1 Broadway, New York city.

Gasoline and naphtha launches and engines.—The Gas Engine and Power Company, and Charles L. Seabury & Co., Consolidated, Morris Heights, N. Y.

Electric and gasoline engines and launches.—The Electric Launch Company, Bayonne, N. J.

Marine gasoline engines and launches.—Panhard & Lavassor Auto Company, 230 West 13th street, New York city.

Marine and automobile engines.—The Grant-Ferris Company, Troy, N. Y.

Gasoline engines, launches, and row and sail boats.—The Fairbanks-Grant Manufacturing Company, Ithaca, N. Y.

Hydro-carbon motors for launches and automobiles.—The G. A. Bachmann Motor Company, Baltimore, Md.

Gas and gasoline engines.—Newark Gas Engine Company, Newark, N. J.

"Perfection" reversing gear.—William H. Brodie Company, 45 Vesey street, New York city.

BUSINESS NOTES.

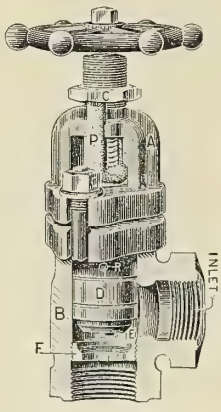
Anchors for the Peary ship.—The Baldt Anchor Company, Chester, Pa., has received an order to supply the anchors for the ship which McKay & Dix, 6 Battery Place, New York city, are building for Commander Peary for his next Arctic exploration.

"Kearsarge" gasket tubing is a recent addition to the list of "Kearsarge" packings manufactured by the H. W. Johns-Manville Company, 100 William street, New York city. This company also makes "Kearsarge" ring packing, a new form of its coil packing. Samples will be sent upon application.

An hydraulic ash ejector.—The Marine Manufacturing and Supply Company, 157 South Street, New York City, says, regarding Thorne's patent hydraulic ash ejector: "This ejector will eject more ashes with less water than any other ash ejector made. It will not clog. The auxiliary jet prevents this. The small hand wheel operates a valve which diverts a stream of water from the main jet and conducts it through a passage in the wall of the hopper, where it is deflected downward and around the side of the same. This effectually clears the hopper, and, furthermore, by filling the discharge opening with water and spray, it assists the vacuum or draft of the main jet."

THE NAME "POWELL"

cast or stamped on Steam Brass Goods is a public guarantee that it is all right and warranted. Have your requisitions call for the POWELL make and get the best.



CYCLONE BLOW-OFF VALVE

WE DESIRE TO CALL YOUR ATTENTION TO OUR

"CYCLONE" Blow-Off Valve

built on correct principles. Has outside screw and yoke top and the POWELL packing gland.

Seat is removable and renewable.

Disk is regrindable and reversible—having two faces to wear, besides renewable.

Seat and disk made of our incomparable wearing metal Powelium BRONZE, WHITE as SILVER.

Sure to give perfect satisfaction.

SEND FOR PARTICULARS

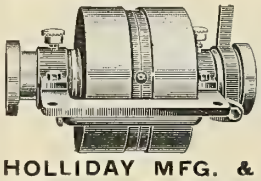
ADDRESS, "VALVE" DEPARTMENT

The Wm. Powell Co.

CINCINNATTI, OHIO.

New York Depot, 51 Cliff St. Philadelphia Depot, 518 Arch St.

HOLLIDAY REVERSING CLUTCH



FOR MARINE ENGINES.

Connection by friction. No noise, as gears are not in use except when propeller is reversed, but are always in mesh. Thrust of propeller holds frictional parts together. Several sizes.

HOLLIDAY MFG. & ENG. CO., CHICAGO, U. S. A.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

THE ATTENTION OF MANUFACTURERS OF

Explosive Types of Engines

is called to a simple device which can be fitted to explosive engines at slight expense with the following advantages:

It will increase horsepower from 50 to 100 per cent.

It will reduce vibration so that absolutely steady light can be given to a direct-connected gas engine-driven electric plant. The importance of this will be appreciated by builders of gas engines for direct-connected plants, as well as for marine and automobile motors.

Because of the great increase in horsepower when engines are fitted with this device, there is a material reduction in weight per horsepower and profits are immensely increased.

Because of the reduction of vibration, there is great saving of metal in the construction of engines.

Engines fitted with this device are self-starting after the first explosion.

For full information and further detail regarding this invention, address:

AMERICAN RIGHTS, Care of MARINE ENGINEERING, 17 Battery Place, New York

Mr. Matthew Carey, upon the recent completion of twenty-five years in the employment of the H. A. Rogers Company, dealers in machinists' supplies, 19 John street, New York city, was presented with a handsome testimonial by the company as a token of appreciation of his services.

Cleveland pneumatic tools.—The Circuit Court of Appeals, Philadelphia, Pa., in an appeal brought by the Cleveland Pneumatic Tool Company, Cleveland, Ohio, against a decision rendered in favor of a rival company which had secured a verdict against the Cleveland company in a suit regarding pneumatic tool-handles, rendered a decision on March 6 in favor of the appellants, the effect of the decision being to entirely exonerate the Cleveland Pneumatic Tool Company from any infringement.

"Gladiator" high-pressure ring-packing, says the New Jersey Asbestos Company, Camden, N. J., is now being used by hundreds of engineers who never before could afford the luxury and convenience of packing in this form. This "Gladiator" packing is molded in steel dies under hydraulic pressure. The rings are very durable, and, being made of asbestos, will not burn or char, and, being molded to shape, they are accurate in size, clasping the rod snugly all around, thus often saving burned fingers and other troubles. The New Jersey Asbestos Company also makes many other asbestos specialties, such as asbesto-metallic sheeting, asbesto-metallic tape, asbestos mill-board, asbesto-metallic gaskets, asbesto-magnesia sectional steam-pipe covering, etc. Catalogue sent free upon request.

Allen riveting machines.—John F. Allen, 370-372 Gerard avenue, New York city, manufacturer of the Allen riveting machine, is in receipt of a letter from his Glasgow, Scotland, agents, John Turnbull, Jr., & Sons, which tells of an interesting demonstration of the Allen machines in Glasgow, as follows: "With regard to the 84-inch boiler riveter, we have been demonstrating it in a shipyard, and the work done, which was on two boiler plates, was perfectly satisfactory. The plates were closed in good style. Our clients have secured a government contract in Malta, and they are anxious to use the riveters on the caissons which they will build there. With this in view we advertised extensively that a demonstration was to be made and we invited by letter most of the shipbuilders and boilermakers in and around this city. We also managed to secure the presence of a government inspector. The machine was put to work on a line of rivets, after which the plate was sawed in two, and the government inspector was perfectly satisfied with the manner in which the machine had driven the rivets and the way the plates were closed."

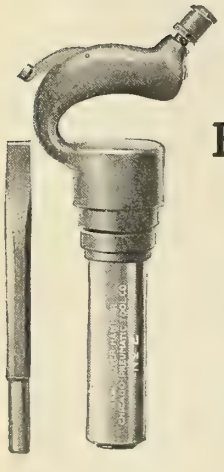
W. T. Bonner & Co., 53 State street, Boston, Mass., manufacturers of engineering specialties, have incorporated under the name of The Wm. T. Bonner Company. Large quarters have been secured at 244-248 Summer street, Boston, where the general offices and the selling and manufacturing departments will be united. The new company states that the scope of its business will be extended to cover a larger line of steam-plant accessories than formerly, and that especial attention will be given to the manufacture of specialties for high-pressure and superheated steam. A full line of cushion pressure-seated control cocks, blow-off, and other valves of a new type designed by Mr. Bonner, will be manufactured in all sizes up to 4 inches. Among the other specialties the new company will manufacture are "Wiltbonco" gauge mountings, quick opening; "Reflex" water gauges; "Wiltbonco" cushion pressure-seated control cocks; "Freeport" blow-off valves, interchangeable, renewable, no pockets for sediment; "Wiltbonco-Hogan" waste-oil filters; "Wiltbonco-Cooperite" sheet packing; "Safety" plastic metallic packing; "Wiltbonco-Monarch" gauge glass protectors; "Wiltbonco-Grief" gauge-glass tubes.

Electric hoist controllers and limit switches.—The Sprague Electric Company, 527 West 34th Street, New York City, says regarding its electric hoist controllers: "The life of an electric hoist is to a large extent dependent on the reliability of the controller and limit switch furnished. A controller or limit switch that is unreliable, not only causes shut-downs of the hoist, due to failure to operate, but it is also liable to burn out the motor or to injure the hoist proper and destroy life or property. This injury of the hoist, due to defects in the controller or limit switch, may be caused by inability to shut off the current, thus causing the ropes to wind or unwind beyond the proper hoisting limits, and so cause the hook block to strike the hoist with great force, injuring the frame, stripping the gears and possibly dropping the load. There is only one style of controller that is durable, reliable and safe, the cylinder-type controller, now used on all electric railways, electric locomotives and on nearly all electrical apparatus used to transport passengers and freight. The durability and safety of the cylinder controller is so universally recognized that no argument is needed to establish these points. All Sprague electric hoists are equipped with limit switches and cylinder controllers."

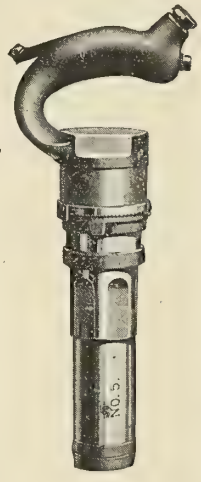
Closing bulkhead doors by electricity.—The new United armored cruiser *Colorado* has been equipped with a full set of safety electric water-tight power doors and hatch-gears, manufactured by the "Long Arm" System Company, Cleveland, Ohio. The *Colorado* is said to be the first vessel in any navy to be furnished with such equipment.

The course in naval architecture at the Grand Rapids School of Mechanical Drawing, Grand Rapids, Mich., has been prepared by men who have spent many years in the study of boat-designing, from the smallest pleasure launches up to designing of large sailing vessels. The course consists of elementary drawing, including geometrical drawing, advanced mechanical drawing, the building of a model for the hull of the boat; instructions and the necessary drawings being given to enable the student to begin from the building of the model to the completed design and a working drawing of the same, complete in every detail, from a small 20-foot launch, leading up to the complete design of finished launch with cabin. It is claimed that these drawings are very accurate, and that any person understanding them can readily follow the student's work, if he has carefully followed instructions. It is necessary in order to take this course that a student be fully familiar with mechanical drawing before starting the boat designing. He, therefore, is required to take a complete course in mechanical drawing before beginning his work on naval architecture. The two combined in one course, the price of which is less in many cases than the price of a single blue print for a small launch is therefore an opportunity that anyone desiring to learn the art of boat building cannot afford to miss. Should the student already have had experience in mechanical drawing, upon a written request from him giving samples of his work, he may take the naval architecture course without reviewing the general course in mechanical drawing, special discount being given to students who take the complete course. Many students are said to be earning their course by securing students for the school that are interested in mechanical drawing, liberal commissions being given for each student that he secures. In order to receive this commission a student must first obtain the number of students to pay his first installment, or be an enrolled member of the school.

Not Twins but a Pair of Hummers



They are Hard to Beat on Ship Boiler and Tank Work



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MARINE ENGINEERING EMPLOYMENT BUREAU

Full information regarding the purposes of this Bureau, together with instructions regarding registration, etc., furnished upon application to Marine Engineering Employment Bureau, 17 Battery Place, New York city.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

POSITIONS SEEKING MEN

GAS ENGINE BUILDER wanted to combine his business with a boat building and repairing shop which has marine railways and an established business. File 40.

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT OR SUPERINTENDING ENGINEER to shipping concern or factory seeks position; is 30 years old, married, and has had several years experience at sea as chief engineer. Application No. 100.

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CHIEF DRAFTSMAN OR SUPERINTENDING ENGINEER seeks position. Has had extensive experience in several of the best known shipyards, and can furnish the best of references. Application No. 81.

CHIEF DRAFTSMAN OR CHECKER seeks position; is 36 years old; married; was with the Carnegie Steel Company for about three years; later with the National Steel Company, and with the American Bridge Company. Application No. 79.

DESIGNER, EXPERIENCED, of dredges and other types of vessels, seeks position; is 28 years old; has had 10 years of experience in Great Britain and this country in leading shipyards. Application No. 82.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL. Age 27; single; has had six years' experience on government work and in private yards; graduate of Webb's Academy. Application No. 65.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

DRAFTSMAN—ENGINE, STEAM OR GAS. Forty-three years old; single; born in Germany; has had extensive experience in designing and drafting; has had sea experience. Application No. 32.

DRAFTSMAN—MARINE. Age 34; married; accustomed to intricate drafting work. Application No. 50.

DREDGE DESIGNER seeks position; has had 10 years' experience in designing and building dredges of all kinds. Application No. 99.

DREDGE OR SHIPBUILDER who has had 20 years of experience in calculating and designing in connection with dredges and other vessels seeks position. Application No. 83.

ENGINE SUPERINTENDENT OR DESIGNER. Age 45; married; many years' practical experience in well-known shipyards with engines, auxiliaries, etc. Application No. 56.

GANG FOREMAN IN ERECTING SHOP OR FITTING UP ENGINES IN SHIPS. Age 37; married; has been with present employers 15 years. Application No. 26.

GAS ENGINE DRAFTSMAN seeks position; is 27 years old; married; technical-school graduate; has had several years' sea experience, as well as a number of years of special work in connection with gas engines; has had experience in building these engines up to 1,500 horsepower; thoroughly posted on all office detail and laying out work. Application No. 97.

GAS ENGINE OPERATOR. Age 28; single; born in Germany; 7 years' experience; understands gas engines thoroughly. Application No. 48.

HULL SUPERINTENDENT. Age 42; married; born and learned trade in Scotland, studied at Glasgow School of Naval Architecture, experienced as foreman; surveyor and hull superintendent. Application No. 27.

LAUNCH AND YACHT SUPERINTENDENT AND DESIGNER. Age 34; married; has had about fifteen years' experience in some of the best known launch and yacht building establishments in the country. Application No. 62.

LEADING DRAFTSMAN OR SUPERINTENDING ENGINEERING FOR STEAMSHIP LINE. Age 34; married; studied Massachusetts Institute of Technology; 11 years' experience in drafting and other marine work. Application No. 53.

LOFTSMAN. Age 33; single; has had eight years' experience as loftsman, foreman, and draftsman. Application No. 44.

MARINE MAN, EXPERIENCED, with excellent recommendations seeks outside position in shipyard or to represent some manufacturing concern or launch builder; is 39 years old and single. Application No. 78.

MASTER OF STEAM YACHT. Age 37; married; born in Norway; has license as master and pilot on ocean steamer; has commanded several well-known yachts. Application No. 40.

MASTER OF SHIP OR YACHT. Age 40; 7 years' experience; has first class master's license for all ocean and coastwise steamers and pilot for most harbors on the coast. Application No. 39.

MASTER OR PIER SUPERINTENDENT. Age 38; has spent whole life at sea and has British Extra and American master's certificate; pilot New York and San Francisco; experience in handling men and cargoes. Application No. 35.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line or fraction thereof, for the first insertion, and twenty-five cents per line for each subsequent insertion. Lines average ten words each. The heading counts as a line, as does also the address.

CANAL BOATS WANTED.

Parties desiring to sell crafts of the steam canal-boat or barge type, can effect sale by communicating with MONTGOMERY H. CLARK, 45 Broadway, New York.

Removal notice.—Queen & Company, makers of scientific instruments, Philadelphia, Pa., have removed their instrument factory from Filbert street to larger quarters in the Cornelius building, 817-831 Cherry street.

The Goldschmidt Thermit Company, 43 Exchange Place, New York city, reports that the United States government has asked it to present the company's exhibition at the World's fair, St. Louis, which was awarded a grand prize, to the national museum at Washington, D. C.

The Submarine Signal Company.—At a meeting of the Submarine Signal Company, at Portland, Me., officers and directors were chosen for the ensuing year. The company is pushing matters, and has contracted with the Canadian government for the protection of the Canadian coast. It is installing the fifty bells recently ordered by the Canadian government as fast as possible. It is also putting bells on the Portland lightship, Boston lightship, in Pollock Rip shoals, Vineyard Sound, Nantucket shoals, Brenton's Reef, Cornfield shoals lightship, Fire Island, Sandy Hook, and Overfalls, Philadelphia.

MASTER AND PILOT. Age 44; single; 11 years' experience; has license for 500 tons as master and pilot ocean and inland for New York, New Haven, and New London districts. Application No. 20.

OILER. Who has had experience on one of the well-known coastwise lines seeks position. Application No. 64.

OILER seeks position to learn marine engineering; is single; 22 years old; well educated and has had considerable mechanical experience. Application No. 77.

SHIP RIGGER. Who has had many years' experience in ship work both on board ship and in shipyards. Application No. 41.

SHIPWRIGHT, PRACTICAL, 48 years old, 33 years of experience in shipyards seeks position. Is competent to take charge of the building of all classes of vessels in wood from the mold loft to completion. Understands Spanish sufficiently to direct a force of men. Application No. 91.

SUPERINTENDENT FOR STEAMSHIP COMPANY. Age 29; married; experienced in hull and engine drafting. Application No. 37.

SUPERINTENDING ENGINEER, CHIEF DRAFTSMAN, ESTIMATOR OR SURVEYOR. Age 34; married; born and educated in Scotland; 15 years' experience in Scotland, Ireland and this country. Application No. 46.

Send for a copy of our catalogue of books on marine subjects.

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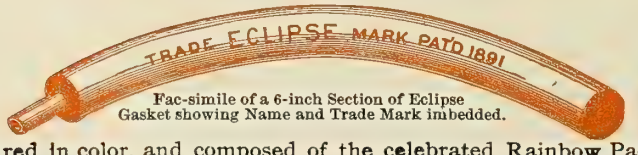

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TRADE PUBLICATIONS.

The April issue of *Graphite*, published by the Joseph Dixon Crucible Company, Jersey City, N. J., contains illustrations and descriptions of many important buildings of all classes in various parts of the United States upon which Dixon's silica-graphite has been used. Numerous testimonials of the paint are published in this number, among them being the following from Charles Daly, London, Eng.: "I painted the boiler and furnace door of my steam-yacht *Gazelle* with your graphite paint, and it lasted two seasons without touching."

A new book for naval constructors and engineers.—The Norman W. Henley Publishing Company, 132 Nassau street, New York city, is bringing out the American edition of MARINE ENGINES AND BOILERS, a hand-book for students, engineers, and naval constructors. This is a volume of 772 pages with 550 illustrations, including 17 folding plates and numerous tables. It is based on the well-known work by Dr. G. Bauer, Engineer-in-Chief of the Vulcan Works, Stettin, Germany. The tables have been reduced to English standards. Only modern types of marine engines and boilers are dealt with and the greater part of the book is based upon results obtained in actual practice. Price $9.00.

"At Last a Gas Whistle" is the title of a booklet published by the Gas Engine Whistle Company, 1133 Broadway, New York city. The statement is made in this booklet that "The only whistle that will produce a strong, clear blast, one that can be heard for two miles, is the Watres gas engine whistle. This whistle is blown by gas. A minute quantity of exploded gas is taken by each explosion and is stored in a tank. It takes little from the power but gives plenty of pressure for a long, strong blow. The result is what is known as a two-inch chime whistle. It blows simultaneously three tones of the chromatic scale, and while loud and strong, it is neither harsh nor discordant. It weighs but 80 pounds. Anyone who can use a pipe wrench can install it."

Centrifugal pumping machinery and marine engines, are the subject of a 90-page illustrated catalogue issued by the Morris Machine Works, Baldwinsville, N. Y. This catalogue states that the Morris centrifugal pumps and marine engines have been on the market over 40 years, and that during that time the company has built nearly 30,000 pumping outfits of different sizes and types. The catalogue illustrates and describes not only the company's regular line of pumps but also a part of the machinery the company builds. The half-tone cuts are especially good. A few of the many illustrations show a pair of 32-inch dredging pumps used by the government in the Mississippi River; a 36-inch pumping engine, capacity 35,000 per minute against a 28-foot head; various types of vertical pumps; several double section pumps; all-composition pumps with direct-connected compound engines; electrically-driven pumps, and various types of marine engines. The catalogue contains, moreover, several pages containing information on friction and power, some useful data in hydraulics, and other information.

Gasoline engines and launches are described in a handsomely illustrated catalogue issued by the Racine Boat Manufacturing Company, Muskegon, Mich. Regarding its "Twentieth Century" motor boat the catalogue states that it is the outcome of twenty-two years of experience; that it is a safe and handsome family launch built to last for years and still look well. In building this boat the company had in mind the fact that few motor-boat owners are familiar with the use of machinery. For this reason the boat was made simple in construction and with an engine easy to understand. The catalogue says: "While we have made the construction as simple as possible we have not done so at the sacrifice of power." This catalogue also illustrates and describes the company's various types of gas engines and their appurtenances, together with boat fittings such as life preservers and ring buoys. The company issues a number of other catalogues, among which are, No. 2, devoted to row-boats, hunting-boats, sail-boats, canoes, etc.; and No. 3, describing steam and sailing yachts, engines, boilers, shallow-draft turbine steamers, etc. Either of these catalogues will be forwarded upon receipt of five cents for postage.

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Executive Committee, JOHN J. AMORY, Chairman: 1908, J. B. SMALLEY, JAMES CRAIG, JR., C. L. SNYDER, EUGENE A. RIOTTE, A. MASSENAT. 1907, JOHN J. AMORY, H. A. LOZIER, JR., J. S. BUNTING, H. N. WHITTELSEY, CHARLES A. STRELINGER. 1906, S. J. MATTHEWS, A. SNYDER, H. H. BRAUTIGAM, ALBERT E. ELDRIDGE, HENRY R. SUTPHEN.

When writing to advertisers please refer to MARINE ENGINEERING.

Cold chisels and other tools are the subject of a 40-page catalogue issued by W. H. Anderson & Sons, Detroit, Mich. The catalogue states "the fact that we have been making tools for more than 33 years is an indication that we do good work."

"Engineers' Chums" is the title of a pamphlet issued by the Mound Tool and Scraper Company, 712 Howard street, St. Louis, Mo. Cold-chisels, packing tools, and a new portable file are described and illustrated. These portable files are made especially for filing valve seats in pumps and engines. Regarding the packing tools the pamphlet states that they will go into any valve-rod pump or engine stuffing-box. They are warranted not to break. The pamphlet will be sent free to all applicants mentioning MARINE ENGINEERING.

Boiler-tube cleaners.—The Criss-Cross tube cleaner for fire-tube boilers, manufactured by the Criss-Cross Tube Cleaner Company, Clinton, Mass., is described in a booklet mailed by this company. In designing this tube cleaner the company had in view a cleaner that should enter the tube without injuring the flanges and that should have a large number of independent, oblique, serrated cleaning edges placed at right angles to the surface of the tubes; the crumbled scale is discharged from the tube when the cleaner is drawn back as well as when pushed forward. The question is asked in this catalogue: "When $12 worth of coal is consumed daily under the boiler with fouled or half-cleaned tubes, how long will it take to save the cost of a good cleaner?" The answer is given: "One day's run."

Plastic metallic packing, manufactured by the Steel Mill Packing Company, Detroit, Mich., is described in a catalogue the company is distributing. This packing is designed for use on high-pressure engines, steam hammers, air compressors, etc. The catalogue states that it is an alloy of the best anti-friction metals, made hard enough for durability, but not hard enough to score steel or brass rods. The metals are made into shreds of assorted sizes which weave together under pressure of gland, forming a packing of great strength. The shreds are cushioned with a compound of lubricating materials which under pressure become incorporated in the packing, making a constant supply of lubrication. Numerous testimonials are contained in the catalogue from satisfied users of this packing.

Marine gasoline engines and propeller wheels are illustrated in a catalogue issued by the Spaulding Gas Engine Works, St. Joseph, Mich. The catalogue states that the design of the engine is up-to-date in every respect. There is a great demand, so the catalogue states, for a motor of medium proportions—one that is simple and reliable and devoid of all complicated parts. The Spaulding engine, it is claimed, embodies simplicity of construction, positive oiling in all frictional parts, variation in speed, quietness of operation, solid cylinder heads, and a new patent igniter. The company has received the following testimonial from Captain H. O. Wilson, St. Joseph, Mich.: "The engine I purchased from you some years ago has been in continuous use since, and it has performed to my entire satisfaction. Two years ago I had in my employ a man thoroughly acquainted with gas engines and their construction. While he was with me I thought it would be well to have him go over the engine and make any repairs that were necessary, as there had never been one cent spent upon it for repairs up to that time. To my surprise he reported to me that there was nothing about it to repair. The engine was put together again as found, and has not given me a moment's trouble since."

Marine and stationary fuel saving and smoke-consuming appliances are the subject of an illustrated 22-page catalogue issued by the James Reilly Repair and Supply Company, 229 West street, New York city. Regarding the company's "Multicoil" marine feed-water heater, the catalogue states that this feed-water heater consists of a cylindrical steel shell with bumped steel heads fitted with an annular gun-metal manifold top and bottom, the two being connected by a series of helical copper coils by means of ground joint unions. The feed inlet leads to the bottom manifold and feed outlet leads from upper manifold. The auxiliary exhaust line is led to the top of the heater and the drain connection at bottom branches into pipes, one of which leads the condensation to the feed tank, the latter pipe being controlled by a valve, and the other branch leads to the main engine condenser and is fitted with an automatic relief valve which maintains a pressure of the exhaust in the heater shell. Under regular working conditions the feed water in the coils of the heater will absorb the heat of the auxiliary exhaust and discharge the condensation to the feed tank. In this manner the main condenser will be entirely relieved of the auxiliary exhaust. The "Multicoil" feed-water heaters are stated to be absolutely automatic, and after being once adjusted they require no further attention. The catalogue gives a long list of steamships and yachts on which the company's feed-water heaters are in use.

RULES
WE make about every style of Steel Rule which mechanical experience has shown to be desirable. In the variety of lengths, thicknesses and graduations you will find something which exactly fits your need.
Free Catalogue No. 17L tells all about them, and several hundred other good tools.
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A new, complete and indispensable work for Naval Constructors and Engineers. 772 pages, 550 illustrations, including 17 folding plates. Cloth bound, Price, $9.00 net.

Marine Engines and Boilers

THEIR DESIGN AND CONSTRUCTION

By Dr. G. Bauer, Engineer-in-Chief of Vulcan Works. Stettin, translated from Second German Edition by E. M. and E. Bryan Donkin

A WORK which embodies the theoretical and practical rules used in designing marine engines and boilers, including only the most modern types, the great part of the book being based upon results obtained in actual practice. Many engineers other than those interested in marine work will welcome this volume, as it contains chapters on Calculation of Cylinder Dimensions, Turning Moment, Balancing of the Moving Parts, Engine Details, Piping and Pumps, particularly useful.

WHAT IS SAID OF THIS BOOK:

"This volume is the best on the subject we remember to have seen. All branches of constructive marine engineers will derive the greatest possible advantage from its pages. The one word *"Thorough"* explains everything. There are not only the formulæ to guide a constructor, but tables of examples and actual working drawings in bulk and in detail. The Tables at the end are thoroughly selected."—*The Marine Engineer.*

Send for a special detailed circular describing this book, also our complete 114-page catalogue of scientific and practical books, which is sent free to any address.

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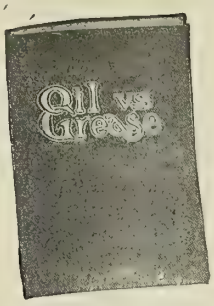

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Joseph Dixon Crucible Co., Jersey City, N. J., U. S. A.

"Pioneers and Leaders" is the title of a booklet issued by the New York Belting and Packing Company, manufacturers of mechanical rubber goods, 91 Chambers street, New York city. Interlocking rubber belting for yachts, battleships, and other craft; rubber belting hose; sheet packing; piston and valve-rod packing, and rubber tubing, are among the specialties this company manufactures.

Metal expanding tools and machinery, invented by Luther D. Lovekin, are described in an illustrated catalogue published by the Scully Steel and Iron Company, Chicago, Ill., exclusive sellers of the Lovekin tools. Among the tools and machines described are pipe flanging and expanding machines, valve-seat expanders, sleeve-jointed machines, and flue-expanding tools. These machines were invented by Mr. Lovekin to meet the demands of work in hand while he was connected with one of the largest shipbuilding concerns in the United States.

Electric generating sets are the subject of Bulletin No. 63, issued by the B. F. Sturtevant Company, Hyde Park, Mass. These generating sets range from 3 to 100 Kw. in output, the smallest size being driven by a 3 1-2 by 3 vertical engine and the largest by a 14 by 14 horizontal center-crank engine; a separate series ranging from 7 1-2 to 100 Kw. is equipped with vertical compound engines. All the types of engines illustrated are inclosed and arranged with water-shed partitions to prevent the water from the piston-rod stuffing box reaching the interior of the frame. All interior bearings are supplied with oil by a system of forced lubrication, thereby securing a mechanical efficiency, so the bulletin states, in excess of 90 percent. Many of the generating sets in vertical, simple, and compound types have been designed to meet the specifications of the United States Navy Department.

"Our electric motors and generators are running in every state in the Union." is a statement made on a calendar mailing card issued by the Crocker-Wheeler Company, Ampere, N. J.

Marine and stationary motors, propeller wheels, and reverse clutches, are the subject of an illustrated catalogue issued by the Tuck Petroleum Motor Company, Third avenue and Twenty-second street, Brooklyn, N. Y.

"Circulation of steam for heating purposes at or below the pressure of the atmosphere," a paper read before the American Society of Heating and Ventilating Engineers by Reginald Pelham Bolton, has been reprinted by Warren Webster & Company, Camden, N. J., who manufacture and install a system of steam heating.

"Steam Specialties" is the subject of illustrated Catalogue No. 9, issued by the Wright Manufacturing Company, Detroit, Mich. Among the devices described are water columns, steam traps, scale separators, and exhaust heads. The catalogue states, "Our entire efforts are concentrated on the specialties herein described, each of which has been made the subject of careful study and experiment."

Users of pneumatic riveters for boiler, tank, and ship work, should send to the Hanna Engineering Works, 820 Elston avenue, Chicago, Ill., for a copy of this company's catalogue devoted to portable and stationary pneumatic compression yoke riveters. The catalogue comprises 16 pages, and contains a number of large and excellent engravings of the several types of riveters which this company manufactures.

A free copy of catalogue No. 70 will be sent to every reader of Marine Engineering by Walter MacLeod & Company, 213 East Pearl street, Cincinnati, O. The catalogue is devoted to illustrating and describing a number of important specialties such as oil forges and furnaces, oil burners for lighting and heating, automatic machines for painting and whitewashing, sand-blast machines, acetylene lights, and lamps of various designs, etc.

"An Ounce of Prevention is Worth a Pound of Cure" is the title of a book issued by the International Boiler Compound Company, 47 Market street, Chicago, Ill. In this case the ounce of prevention is the International boiler compound, which, the booklet states, saves the boiler, saves labor, saves fuel, and prevents explosion. A trial sample of this compound will be sent free to those mentioning Marine Engineering.

Marine gasoline motors are illustrated and described in Circular No. 7, issued by the Toquet Motor Company, Metropolitan Building, New York city. In designing this motor the company had in view the making of an engine strong, compact, and symmetrical, with every wearing surface of ample size, and every fastening secure. The construction, the catalogue states, is the best that special machinery and modern methods can produce. All parts are interchangeable.

Pipe and boiler coverings are the subject of a 50-page illustrated catalogue issued by the Philip Carey Manufacturing Company, Lockland, O. The claim is made for these coverings that they are absolutely fire-proof; that they confine the heat to the pipes or boiler, thus preventing loss through radiation; that they prevent the condensation of steam, thus avoiding the necessity of excessive firing and reducing the amount of fuel consumed; that the amount of fuel saved in this manner will within six or eight months more than pay for the cost of the coverings; that they outlast the surfaces to which they are applied, so that the saving year after year becomes an annual dividend of at least 100 percent on the original cost; that they are used by thousands of steam users throughout the country.

1842
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of the Stillson Wrench is as close to the mechanic to come as is the tool in the hands of the millions of active workers at large to-day. Where there is no

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1905
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Anti-friction bearings, bronzes, steel, copper, and other metals manufactured by the Buda Foundry and Manufacturing Company, Railway Exchange Building, Chicago, Ill., are described in Bulletin No. 11 issued by this company.

Gasoline marine motors are described in a folder issued by the Duryea Power Company, Reading, Pa. This company makes a specialty of steel hulls for motor boats, which, it states, when built with suitable air chambers, are more buoyant than wood, less liable to damage, more easily repaired, cheaper to buy, and cheaper to maintain. A 21-foot hull containing two people and driven by this company's regular triple motor, recently went several hours at the rate of 15 miles per hour, so the folder states.

The Bullard automatic wrench.—This wrench is described in an illustrated pamphlet published by the Bullard Automatic Wrench Company, Providence, R. I. The catalogue states that the Bullard wrench is so constructed as to make it wear evenly, the strain on the jaws being distributed by use on different sized pipe, thereby increasing the durability of the wrench. It is manufactured from the best drop forged steel and has jaws of high-grade tool steel.

Gas engines, propeller wheels, reverse gears, batteries, coils and fittings, are described in an illustrated folder issued by McDonald & Erickson, 36 West Randolph street, Chicago, Ill. The folder states that upon examination of the McDonald & Erickson engine one is struck with the absence of complicated parts. The engine has no valves, springs, cams, or small triggers to get out of adjustment. All working parts are easy of access and all parts are made in duplicate and are interchangeable. The blades of the propeller are interdependent, interchangeable, and easily removed or replaced.

"The Progress Reporter," an illustrated magazine of about 50 pages, is issued every few weeks by the Niles-Bement-Pond Company, 136 Liberty street, New York city. The object of the publication is to keep the employees of the company and the public in general informed regarding new machines and devices which are constantly brought out. Any one interested will be put on the free mailing list upon request. The April issue is devoted to illustrating and describing the Schnectady works of the American Locomotive Company.

The Crosby steam engine indicator and the Crosby reducing wheel, are described in a folder issued by the Crosby Steam Gauge and Valve Company, Boston, Mass. The folder asserts that to obtain trustworthy results on high-speed engines the indicator must be light and possess a perfect adjustment of all moving parts, together with simplicity of construction and convenience of manipulation. These qualities the circular states are all found in the Crosby indicator. Regarding the reducing wheel, it is asserted that this wheel is adapted to receive any steam-engine indicator or indicator cock on all steam engines within the limits of stroke of 10 inches and 72 inches.

"Graphoil" lubricators, manufactured by the Comstock Engine Company, 49 Clymer street, Brooklyn, N. Y., are the subject of a booklet this company is distributing. Regarding the use of graphite for lubrication, the catalogue states that as prepared by the Joseph Dixon Crucible Company, Jersey City, N. J., it has been favorably known for years, having the indorsement of thousands of practical engineers. Various mechanical devices have been employed for feeding it but none of them were satisfactory. The Graphoil lubricators are presented in the belief that they will feed a high-class lubricating material in the best possible way.

"A Few physical, competitive and service tests to Falls Hollow and solid staybolt iron," are published in a 32-page folder issued by the Falls Hollows Staybolt Company, Cuyahoga Falls, O. Among the advantages of the Falls Hollow staybolts claimed in this folder are greater tensile strength, saving of material, greater opportunity for detection of breakage, and improved combustion. The Falls Hollow staybolt iron, it is stated, is now the standard with many of the leading railway and boiler manufacturers of the United States, Canada, Mexico, Japan, Norway, Brazil, and many other foreign countries. "The Experience of an Expert on Falls Hollow Iron," and copies of orders from all over the world, are also contained in this folder.

"Boiler Scale and its Prevention."—A description of the method of cleaning steam boilers with the automatic boiler cleaner made by the Buckeye Boiler Skimmer Company, 519 Colburn street, Toledo, O., together with numerous testimonials from purchasers, is the subject of a 32-page catalogue this company is distributing. The device is intended to remove impurities from the water in marine and stationary boilers and return the purified water at slightly reduced temperature to the boiler, thus preventing the formation of scale and sediment, thereby increasing the steam capacity and diminishing operating expenses, besides prolonging the life of the boiler, preventing foaming and lessening the danger of explosion. The device is said to be of simple construction and easily operated.

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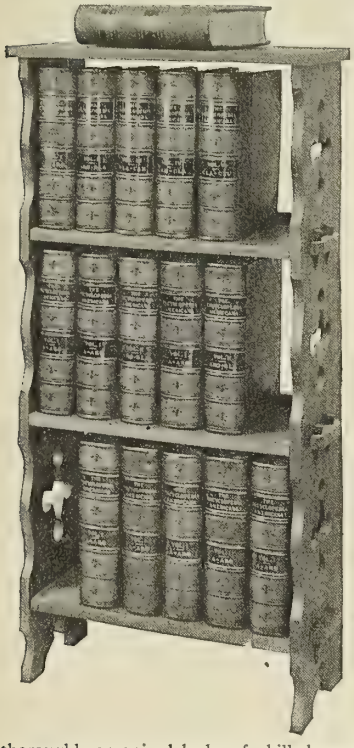

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CUT OUT AND MAIL TO-DAY

The Wieland 8-inch pipe threading and cutting machine, with adjustable expanding chasers, is described in an illustrated folder issued by the Standard Engineering Company, Elwood City, Pa.

The steam regulating devices and steam pumps manufactured by the Mason Regulator Company, 158 Summer street, Boston, Mass., are described in an illustrated catalogue this company is issuing. Among the steam specialties described and illustrated are reducing valves, pump-pressure regulators, automatic belt shifters, balance valves, pump governors, water reducing valves, and steam pumps.

Crane steam and oil separators.—Crane Company, Chicago, Ill., has issued its advanced Circular No. 01 of Crane steam and oil separators for the separation of water from live steam, and the elimination of oil from exhaust steam. These separators are made in sizes from one to thirty inches, in horizontal, vertical angle, and distributing types. The circular contains 26 pages, is fully illustrated, and will be forwarded free upon request.

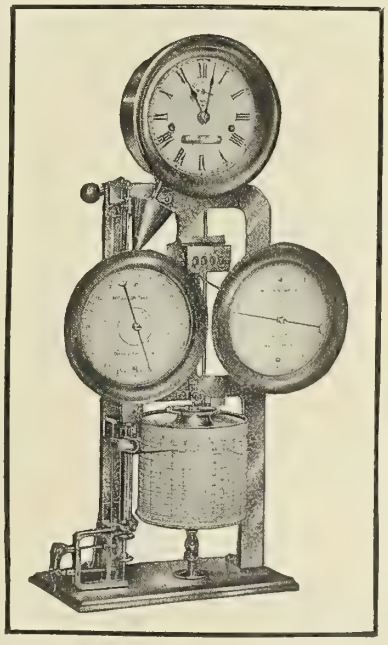
"Fire-proofing Hulls" is the subject of a folder issued by Toch Brothers, 468 West Broadway, New York city. This folder states: "We have fire-proofed many ferryboats in New York harbor by the use of 'Tockolith.' 'Tockolith' is a tricalcic silicate cement which is mixed with water. We will send you working samples of 'Tockolith' free upon application. It can be used on damp surfaces, and this makes it set harder. One of our largest ferry companies has adopted this compound with great success."

Ice and refrigerating machines are described in an illustrated catalogue issued by the Kroeschell Brothers' Ice Machine Company, 29 East Erie street, Chicago, Ill. Regarding the North Pole ice and refrigerating machine, it is stated that they are very compact, making them suitable for use on board ship. They can be shipped ready to begin immediate operation upon making the necessary bolt and pipe connections, and may be operated by steam, electricity, or gas engines.

"Upsetting Rivets" is the title of a booklet issued by John F. Allen, 370 Gerard avenue, New York city. A number of testimonials of the Allen boiler riveting machine appear, among them being one from the Portland Company, Portland, Me.: "The 72-inch boiler riveter bought from you has given satisfaction. We are able to rivet small boilers, which will not go over the stake on the yoke riveter, very satisfactorily, although we have been unable to do steam work with the ordinary yoke riveter."

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

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204 SUPERIOR STREET, CLEVELAND, OHIO

Vol. I, No. 2, of "Air Power," published by the Rand Drill Company, 128 Broadway, New York city, manufacturer of pneumatic tools and air compressors, contains a number of illustrated articles of interest to engineers. Among these are articles describing a natural-gas pumping plant at Hundred, Va., "Graphics of Boyle's Law," and "Economy in the Operation of Coal Mines and Power Plants." The magazine states that "'Air Power' does not contain fiction. If we say that a compressor has been installed at a certain point which delivers 5,000 cubic feet of air per minute, you can take it to be a fact."

"The New Yankee Drill Grinder and Other Good Tools" is the title of a catalogue received from the Wilmarth & Morman Company, Grand Rapids, Mich. The "New Yankee" drill grinder is made in many styles, and each is described in this catalogue. These grinders have no gauge jaws and no calipering devices. The holder is never moved except to follow the wear of the wheel. It is claimed that these grinders can stand very high speed, require only light feed pressure, produce clean chips, true straight holes, run a long time between grinding, and rarely break. Besides the drill grinder this company manufactures friction counter-shafts, arbor presses, and the Nelson loose pulley. Anyone mentioning Marine Engineering can secure a copy of this catalogue.

BUSINESS NOTES.

An electrical exposition.—There will be held at Madison Square Garden, New York city, from December 12 to 23, 1905, an electrical trade show, wherein are to be exhibited the appliances and developments of electrical engineering. Information concerning the exhibition may be obtained from G. H. Sever, Director of Exhibits, 26 Cortlandt street, New York city.

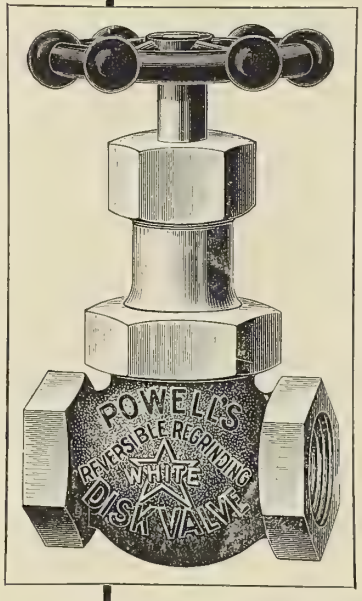
New boiler works.—The Robb-Mumford Boiler Company, Amherst, Nova Scotia, is building a large plant at South Framingham, Mass., and has bought the boiler works of Edward Kendall & Sons, Cambridge, Mass. This latter plant will be transferred to South Framingham when the new works are completed. The new plant will be located on the line of the Boston and Albany Railroad, and will be equipped with all up-to-date apparatus. According to the present plans the establishment will consist of a main shop 300 by 150 feet and an office building.

Metallic packing for gas engines is the latest product of the France Packing Company, Tacony, Philadelphia, Pa. The company has long been experimenting with such a packing, and now claims to have achieved complete success. This packing is to be sold under the same conditions governing the other outputs of the company's plant—the coupon system—by which any engineer, master mechanic or superintendent can equip his entire plant with tools free of charge. For particulars see the advertisement of the France Packing Company on page 17 of Marine Engineering.

The Susquehanna Marine Works Company, Havre de Grace, Md., announces that it designs and builds speed launches, auto boats, gasoline power fishing boats and oyster dredges, sailing vessels and steam tugs. The company states "our experience with marine gasoline motors enables us to give expert advice in selecting a power suited to the work. No matter what kind of an engine you have in view, let us name you a price on your boat with your selection installed. We can buy the engine and save you money. If you are undecided about the engine, we will give you the advantage of our experience and advice."

A prosperous roller-bearing company.—S. S. Eveland, vice-president and general manager of the Standard Roller Bearing Company, 48th street and Girard avenue, Philadelphia, Pa., has purchased for his company the plant of the Federal Manufacturing Company, Cleveland, O., which has manufactured steel balls for twenty years. The Standard Roller Bearing Company a year ago bought the ball business of the Grant Ball Company, Cleveland, O., and Franklin, Pa., and transferred it to Philadelphia. These consolidations give the company a capacity of more than 500,000,000 balls a year. This great enlargement of the Standard Roller Bearing Company has all taken place since Mr. Eveland became vice-president and general manager.

THE POWELL "White Star" Valve



Is the only renewable Disk Valve made that will stand high-pressure steam—

Another Special Point In Its Favor

is the composition of the disk, hard, close grained, white as silver, with a view to durability. It will stand superheated steam having been tested under 2,000 degrees heat.

New disks can be inserted by any one; requires no teaching—it's easy as a b c. Ain't such a valve worth your investigation?

Buy a valve and give it a practical test

They are Repair Bill Avoiders

The WM. POWELL CO.

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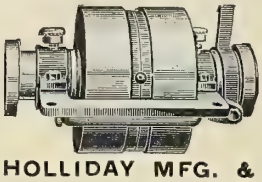
HOLLIDAY REVERSING CLUTCH



FOR MARINE ENGINES.

Connection by friction. No noise, as gears are not in use except when propeller is reversed, but are always in mesh. Thrust of propeller holds frictional parts together. Several sizes.

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A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

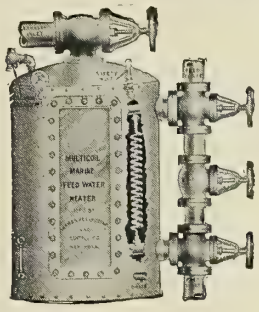
427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

About your

HEATERS

No crawling or leaky tubes—perfect elasticity—light weight—no air pocketing—entirely automatic—only one pump required.

In our heater, the water flows from a cooler to a warmer zone, and in this way one square foot of our coil heater does as much work as two



square feet of tubes. The efficiency of a heater depends not on the quantity of surface, but on the agitation of the liquid and its velocity of flow. Our coils are arranged to agitate and rotate the water during its passage.

With our heater, it is merely a matter of opening the side door and all the coils are accessible for removing the grease, which is impossible in a straight tube heater.

Some of the Ships that have them:

Monroe, Jefferson, Asbury Park, Sandy Hook, Horatio Hall, Manhattan, North Star, Kershaw, Powhattan, Juniata, Lexington, Essex, Chatham, D. Mills, Middletown, Hartford, H. Wilson, Victory, S. Carroll, Sampson, Schley, Hoboken Ferry Boats, Erie Ferry Boats, Transport Sumner.

Will you read the **Tri-City Supply House's** "Feed-Water Sense" Booklet?

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Main Office, 229 West Street, - NEW YORK CITY

THE H. W. JOHNS-MANVILLE COMPANY, 100 William street, New York city, manufacturer of asbestos materials, has appointed T. T. Lyman General Sales Manager.

PNEUMATIC TOOLS AND APPLIANCES are manufactured by the Aurora Automatic Machinery Company, Aurora, Ill. Regarding its reversible drills the company states that they can be reversed at full speed, a twist of the wrist stopping, starting, or reversing them.

TERRY & COMPANY, Detroit, Mich., general Eastern agents of the Lamb Boat and Engine Company, Clinton, Iowa, have leased the store formerly occupied by Toppin Brothers, 92 Chambers street, New York, N. Y., and will put in a complete line of yacht hardware.

THE FOLLOWING VESSELS have been classed and rated by the American Bureau of Shipping, 66 Beaver street, New York city: American screw *City of Peking,* American screw *Ordnance,* American schooner *Governor Powers,* American tern *Greenleaf Johnson,* American barge *Somerset,* Danish bark *Erik,* and Swedish bark *Malvina.*

LIFE PRESERVER TESTS.—The recent tests made by the United States Board of Supervisors regarding life preservers resulted in showing that the life preservers made from the blocks of Acme compressed cork by the Armstrong Cork Company, Pittsburg, Pa., were of superior quality.

THE NILES-BEMENT-POND COMPANY, manufacturer of machine tools, has moved from 136 Liberty street, and has leased an entire floor in the new Trinity Building at 111 Broadway, New York city. This company employs about 5,000 men, having two factories in Philadelphia, Pa., one in Hamilton, O., and one in Plainfield, N. J., besides owning the Pratt & Whitney Company, Hartford,

ENGINES FOR THE PENNSYLVANIA RAILROAD LAUNCH.—The 70-foot launch which is now being built by the Pennsylvania Railroad Company for use at Ocean City, N. J., is fitted with engines built by W. D. Forbes Company, Hoboken, N. J. This company has built the machinery for the entire fleet plying between Ocean City and Longport. The engines are compound, 8 by 16 by 10.

WILSON & SILSBY, sail makers, Rowe's Wharf, Boston, Mass., report the following orders for sails: George E. Darling, Providence, R. I., mainsail for cat boat; Robert Toland, Philadelphia, Pa., suit of sails for *Pellegrina;* Sumner Foster, suit of sails for 22-footer; A. Bryan Alley, New York city, suit of sails for 21-footer; Frank T. Christy, Rochester, N. Y., suit of sails for 30-footer; George Lawley & Son Corp., South Boston, Mass., suit of sails for 18-footer; Cary, Smith & Ferris, New York city, suit of sails for 90-footer; John Cox & Company, Boston, Mass., two suit of sails for 35-ton lobster smacks; George Lawley & Son Corp., suit of sails for 35-foot schooner; W. H. Winship, Boston, Mass., suit of sails for 25 footer; John F. Washburn, Vineyard, Mass., mainsail for cat-boat; W. B. Rogers, Boston, Mass., three suits of sails for 18-footers; Henry A. Morss, Boston, Mass., suit of sails for *Cossack;* George B. Gale, Atlantic City, N. J., suit of sails for 50-foot sloop; George B. Gale, Atlantic City, N. J., jib for *Mehrer, II;* H. T. Schmidt, Detroit, Mich., suit of sails for *Spray;* J. E. Ramaley, White Bear, Minn., two suits of sails for 17-footers; David B Ogden, New York city, suit of sails for *Hadassah;* James E. Graves, Marblehead, Mass., suit of sails for boat sent to Germany; J. O. Johnson, White Bear Lake, Minn., one suit of sails for 20-footer; J. O. Johnson, White Bear Lake, Minn., four suits of sails for 17-footer; Kee Lox Manufacturing Company, Rochester, N. Y., suit of sails for 30-footer *Kee Lox II;* Gardner & Cox, New York city, suit of sails for boat sent to Wiborg, Finland; A. F. Jennings, Detroit, Mich., suit of sails for steamer *Claire;* George Owen, Winthrop, Mass., two suits of sails for 21-footers; Harry Wahl, Wiborg, Finland, mainsail for cat-boat; C. C. Hanley, for A. C. Jones, suit of sails for 22-footer; William G. Burton, Tuckerton, N. J., mainsail for cat-boat; George Lawley & Son Corp., suit of sails for 95-footer for R. A. Rainey; W. D. Wood, Providence, R. I., mainsail for cat-boat; Frank S. Page, Norwalk, Conn., suit of sails for 21-footer; T. L. White, Manchester, Mass., two suits of sails for 18-footers; H. H. Landon, New York city, suit of sails for 15-footer; W. Morse Wilson, Buffalo, N. Y., suit of sails for 25-footer; Baker Construction Company, suit of sails for 18-footer; Tams, Lemoine & Crane, New York city, mainsail for yacht *Ailsa;* G. R. Liljegren, Gothenburg, Sweden, four suits of sails; George W. Lee, Ocean City, N. J., mainsail and jib; W. J. Schieffelin, New York city, suit of sails for 25-footer; George A. Suter, New Rochelle, N. Y., suit of sails for *Simiter;* William J. Wright, mainsail and jib; I. Bergmann, St. Petersburg, Russia, suit for 32-foot rater.

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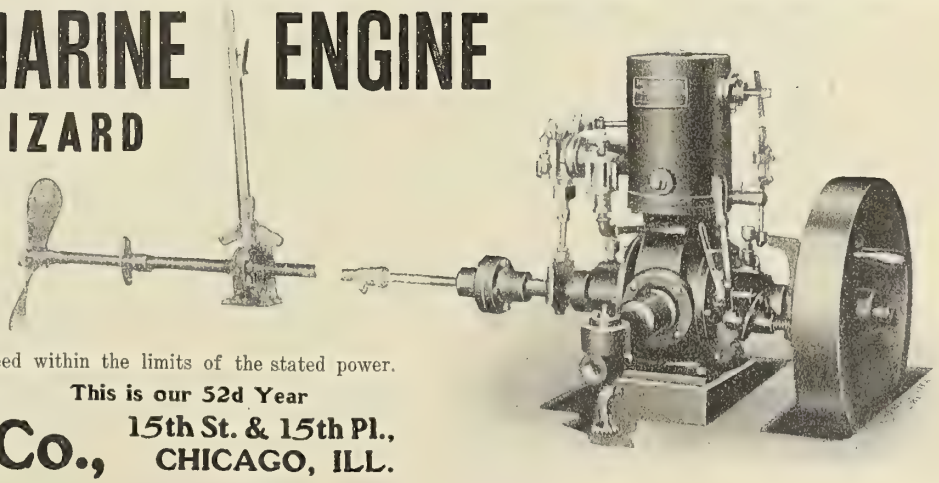
Until you have investigated **THE WIZARD**



Three to Five Horse; equipped with Patent Speed Changing Device, enabling speed to be instantly changed from 200 to 800 Revolutions per Minute, without changing spark or mixture, whereby from One Horse to Five Horse Power can be obtained; equipped also with Patent Governor, which, in connection with the changing device, automatically maintains any given rate of speed within the limits of the stated power. Also Reversing Propeller as per illustration.

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is called to a simple device which can be fitted to explosive engines at slight expense with the following advantages:

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It will reduce vibration so that absolutely steady light can be given to a direct-connected gas engine-driven electric plant. The importance of this will be appreciated by builders of gas engines for direct-connected plants, as well as for marine and automobile motors.

Because of the great increase in horsepower when engines are fitted with this device, there is a material reduction in weight per horsepower and profits are immensely increased.

Because of the reduction of vibration, there is great saving of metal in the construction of engines.

Engines fitted with this device are self-starting after the first explosion.

For full information and further detail regarding this invention, address:

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Full information regarding the purposes of this Bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York city.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT OR SUPERINTENDING ENGINEER to shipping concern or factory seeks position; is 30 years old, married, and has had several years experience at sea as chief engineer. Application No. 100.

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CHIEF DRAFTSMAN OR SUPERINTENDING ENGINEER seeks position. Has had extensive experience in several of the best known shipyards, and can furnish the best of references. Application No. 81.

CHIEF DRAFTSMAN OR CHECKER seeks position; is 36 years old; married; was with the Carnegie Steel Company for about three years; later with the National Steel Company, and with the American Bridge Company. Application No. 79.

DESIGNER, EXPERIENCED, of dredges and other types of vessels, seeks position; is 28 years old; has had 10 years of experience in Great Britain and this country in leading shipyards. Application No. 82.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL. Age 27; single; has had six years' experience on government work and in private yards; graduate of Webb's Academy. Application No. 65.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

DRAFTSMAN—ENGINE, STEAM OR GAS. Forty-three years old; single; born in Germany; has had extensive experience in designing and drafting; has had sea experience. Application No. 32.

DRAFTSMAN—MARINE. Age 34; married; accustomed to intricate drafting work. Application No. 50.

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" 102, Fred. W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, Box 378, New Bern, N. C.

TRADE PUBLICATIONS.

A quick-action pipe wrench.—The pipe wrench manufactured by the Hammond Manufacturing Company, 32 Atlantic avenue, Boston, Mass., is described in a folder issued by this company. It states that a simple pressure of the thumb on the lever releases the jaw, allowing it to be instantly opened to its full width. This tool consists of very few parts, all of which are interchangeable. The inserted jaw is removable, and can be replaced at any time.

Pattern-shop equipment for wood and metal pattern work is described in illustrated catalogue No. 27, published by the Fox Machine Company, Grand Rapids, Mich. The catalogue states that as the company believes that a complete pattern-shop equipment catalogue will be appreciated, it has prepared this one for distribution, listing a full line of the tools the company puts out especially for pattern-work use. The company issues separate catalogues on general wood-working and machine tools, and will forward any of them free upon request.

Twist drills are the subject of an illustrated 22-page catalogue issued by the Lincoln-Williams Twist Drill Company, Taunton, Mass. Regarding its high-speed twist drills, the catalogue states: "The remarkable results obtained from high-speed steel made into lathe and planer tools, and the request of many customers that we make some twist drills from high-speed steel, induced us to experiment with some of the best-known brands. The results were marvelous, and were a revelation in drilling, not only to our customers but to ourselves." In addition to high-speed drills, the catalogue describes carbon steel tools such as shank drills, machine bitts, and taps and dies.

"Classified Mechanical Facts" is the title of a work published by the J. B. Lippincott Company, Washington square, Philadelphia, Pa. The object of the work, the company states, is to form a standard hand-book for the mechanical engineer and the designer of machinery, supplying in convenient form the general information which is constantly required but which cannot be memorized. The book treats on mathematics, mechanics, materials of engineering, strength of materials, machine design, heat, air, water, fuel, steam, steam boilers, steam engines, internal combustion motors, electric power, the cost of power, and works management.

Marine gasoline engines and launches are described and illustrated in a 36-page catalogue issued by the Frank M. Watkins Manufacturing Company, Cincinnati, O. The engines described in this catalogue are all of the two-cycle type. Although the company manufactures both two- and four-cycle engines, yet for use in small pleasure craft it recommends the two-cycle type. The company states that the material and workmanship in the construction of its engines are of the best obtainable. The cylinders are made from gray iron castings and the pistons are made of the same material and of a length which experience has shown to be most serviceable. The packing rings are of the snap-ring pattern made from special casts. The crank shafts are of forged steel and the crank-ring bearings are fitted with heavy phosphor bronze bushings; the connecting rods are also of phosphor bronze. The jump-spark system of ignition is used, and the engine is equipped with a spark-speed controller. The cylinders of the engines are encased with water jackets. Grease cups and lubricators are of the most up-to-date type. On sizes of engines of 3 1-2 horsepower and over the company furnishes inboard reverse gear if desired. This gear has one clutch and one brake band on the outside of the drum. When both these are loose the engine can run freely. By moving the lever forward the engine is clutched direct to the propeller shaft which drives the propeller wheel in a direction to move the boat forward. When it is desired to move the boat backwards the lever is pulled back, engaging the brake band on the outside of the drum, holding the drum stationary, and by the aid of spur gears on the inside of the drum the propeller shaft is reversed. The company's four-cycle engines are manufactured in sizes of 15 horsepower or larger. This company now furnishes launches in all sizes from 16 feet up.

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When writing to advertisers please refer to MARINE ENGINEERING.

Newman's improved portable watchman's clock is illustrated and described in a circular distributed by the Newman Clock Company, Masonic Temple, Chicago, Ill. The various special features of the clock are fully explained in the circular.

Ice-making and refrigerating machinery apparatus are described in a catalogue issued by the Featherstone Foundry and Machine Company, 348 North Halsted street, Chicago, Ill. The machines manufactured by this company have been on the market for twenty-five years, and among the advantages claimed are simplicity of design, economy of operation, and durability.

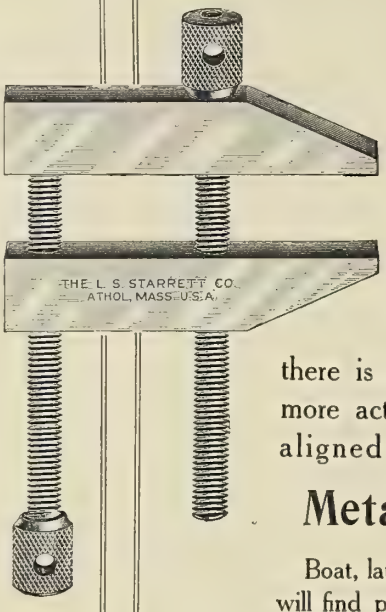
Gasoline, electric, and steam launches, sailboats, rowboats, canoes, hunting, and fishing boats, are described in the handsomely illustrated 1905 catalogue issued by the Madison Boat Company, Madison, Wis. The catalogue states that this company's factory covers 8,500 square feet of floor space, and that it is equipped with the latest types of modern machinery. The catalogue will be forwarded upon the receipt of six cents for postage.

"Main Steam Pipes," by W. H. Wakeman, is the title of the leading article in the May number of *Graphite,* issued by the Joseph Dixon Crucible Company, Jersey City, N. J. In the same issue with this publication is described the advantages of Dixon's Ticonderoga flake graphite in the lubrication of the bearings of engines and machinery. Among the advantages claimed are the following: Seizing or cutting of metal surfaces is impossible in the presence of a layer of flake graphite which, being renewed from time to time, takes up all wear and prevents abrasion of the parts; graphite smooths and polishes the surfaces thereby reducing friction to a minimum; if graphite is used in connection with an oily lubricant thinner and cheaper oils are sufficient to assure good results and much less oil is required than if no graphite were used.

The Bird-Archer marine boiler compound is the subject of a booklet issued by the Bird-Archer Company, 574 West Broadway, New York city. The booklet states that this compound reduces coal consumption, increases steaming capacity of boilers, thereby increasing the revolutions of the engine; prevents pitting and corrosion, thus reducing the cost of maintenance. The company states that its boiler compound removes oil, grease, and scale; that it is absolutely uninjurious to steel, iron, and packing; that it does away with the necessity of using zinc in boilers, and that it will not cause boilers to foam. Among the users of this company's marine boiler compound, so the booklet states, are the Pennsylvania Railroad Company, the Erie Railroad Company, the New York, New Haven and Hartford Railroad Company, the United States Army transport service, and many others. This booklet contains a large number of testimonials regarding the company's compound from well-known steamship companies and engineers.

The forged-steel flanges manufactured by the American Forged Steel Company, 64 Wabash avenue, Chicago, Ill., are the subject of a folder this company is distributing. Forged-steel flanges, so the folder states, render high-pressure connections absolutely safe. By their use joints are easily made and remain perfectly tight. This company's flanges are forged weldless from open-hearth steel, and by a special process there is forged an extra heavy hub on the flanges. The outside of the flanges is beveled for caulking.

"The Navigator or Mariner's Guide," second edition, published by Harry Louderbrough, proprietor of the New Jersey Paint Works, Jersey City, N. J., is just off the press. This work, which contains 202 pages, is designed as a handy reference for the use of navigators, yachtsmen, and students of navigation. It explains how to find latitude and longitude by observation, and contains many other useful calculations and tables by Captain R. M. Pugsley. There is also a pocket containing charts of New York bay and harbor, Long Island Sound, Boston, Gloucester, and Portland harbors, Delaware and Chespeake Bays, Block Island to Currituck, and a current-course projector. The book is profusely illustrated, among other illustrations showing the flags and pennants of the international code, half-tone illustrations, and many well-known racing yachts and other vessels, sail and steam. Among the subjects on which information is furnished are fog-signal devices, tables for correcting soundings, signals to the engine room, loading tables, speed and revolutions, fouling and marine painting, the law of storms, the use of the barometer, explanation of astronomical signs, Mercator and mile latitude, sailings by computation, latitude by chronometer, latitude by sunset and sunrise, explanation of compass terms, latitude by meridian, explanation of the use of the sextant and octant, tables of weights, finding the distance of any fixed object, yachting rules, statement giving the tonnage of the world's merchant marine, pilot rules, signalling by various codes, calendar for every year from 1801 to 2003, and a vast deal of other information.



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MUCH INFORMATION OF PRACTICAL VALUE IS CONTAINED IN "OIL vs. GREASE LUBRICATION."

FREE ON REQUEST

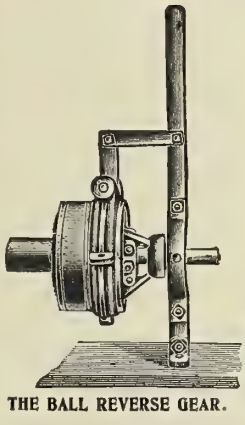
WITH SAMPLES OF DIXON'S GRAPHITE LUBRICANTS

Joseph Dixon Crucible Co., Jersey City, N. J., U. S. A.

THE IMPROVED

"BALL" REVERSE GEAR

FOR MOTOR BOATS



THE BALL REVERSE GEAR.

MADE ONLY OF

SPUR GEARS

PATENTED,
April 9, 1901.
Nov. 3, 1903.
Jan. 12, 1904.

HAS NO EQUAL

Manufactured Only by the

NEW YORK GEAR WORKS

56 Greenpoint Ave., Brooklyn, N. Y.

Send for Catalogue.

Radial drills, vertical boring and turning mills, multiple spindle drills, both upright and horizontal, are described in an illustrated folder issued by the Bausch Machine Tool Company, Springfield, Mass.

The "Minimax" fire extinguisher is described in a folder issued by the "Minimax" Company, 24 East Twenty-first street, New York city. The folder states that for this device there is required no hose or mechanism, and no turning up side down, that it is instantaneous, automatic, economical, efficient, and that there is no evaporation.

The Pacific Mail Steamship Company has issued from its Eastern office, 349 Broadway, New York city, a handsomely illustrated folder which gives interesting information concerning travel to the Orient and around the world. Special attention is called to the company's fleet operated from San Francisco, and touching Honolulu, Yokohama, Nagasaki, Shanghai, Hong Kong, and Manila.

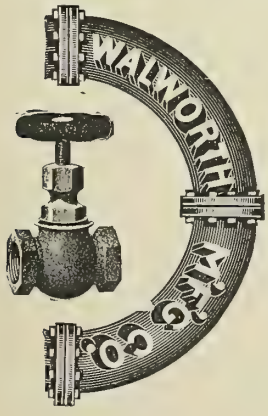
Polishes—liquid, paste, and powder—for brass, copper, nickel, and other metals, are described in a catalogue issued by the Royal Lubricating Oil Company, 116 Broad street, New York city. This catalogue states that the Royal polishes are used in the United States navy yards and life-saving stations, as well as by a large number of steamship companies.

Multiple sight-feed oilers, with signal lever reservoir outfits, manufactured by the William Powell Company, Cincinnati, O., are described in a leaflet distributed by this company which states that when it is desirable to oil a number of bearings from one reservoir the Powell multiple oiler is a convenient and economical arrangement, besides being a great saving in the labor of filling, as there is only one reservoir to attend to.

"Sea Togs" is the title of a booklet issued by John C. Hopkins & Company, 119 Chambers street, New York city. The introduction states: "for many years the house of Hopkins has stood for all that is correct in marine hardware, yacht supplies, and yacht clothing. In addition, it has enjoyed an inevitable reputation for the boats, canoes, sales, tents, awnings, and fishermen's supplies with which its name is associated."

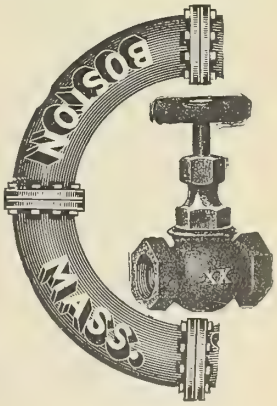
Punching and shearing machines are described and illustrated in a catalogue issued by Henry Pels & Company, 68 Broad street, New York city. Regarding its John's "Patent Combined Universal Horizontal and Vertical Punch," the catalogue states that this machine is especially built for boiler shops and shipyards, in any size and depth of throat. The catalogue states that the John's shearing machines shear plates, flat, round, and square bars, tees and angles, and cut angles on a bevel. Their simplicity of construction allows a quick changing of tools.

Cranes and electric travelers are the subjects of Catalogue No. 36, issued by the Whiting Foundry Equipment Company, Harvey, Ill. This catalogue states that the introduction of the traveling crane has revolutionized methods of manufacture and the entire theory of shop designing. Material of any kind may be quickly transported from one place in the shop to any other, or finished machinery may be handled in the most delicate manner when required, without labor and without interference with work on the floor. Electric traveling cranes, so the catalogue states, are the highest development of crane designing. Clutches and intricate parts are avoided. Gearing and other wearing parts are reduced to a minimum and efficiency correspondingly increased.



Mr. Engineer

you should prove your purchases. Get your evidence from the balances. When you've got your weight-value fixed, then see that the thick-and-thin of it means the wear and tear that your money should cover. The sixty- three years of our business life were spent in giving you the solid values that will stand any test. The kinds of Valves we make are limited only by the needs of Steam, Water and Gas work.



WALWORTH MFG. CO., - BOSTON

The drill grinders manufactured by the Washburn Shops, Worcester, Mass., are described in illustrated Catalogue "C" now being distributed.

The Willamette Boiler Works, Portland, Ore., manufacturer of marine and stationary boilers, is distributing a neat calendar printed on an almuinum card.

The steam engines built by the Corliss Engine Works, 4041 North Fifth street, Philadelphia, Pa., are the subject of an illustrated catalogue this company is mailing.

"The Blue Book of Air Compressors" is published by the Ingersoll-Sergeant Drill Company, 26 Cortlandt street, New York city. This booklet illustrates and describes the various types of air compressors and pneumatic tools manufactured by this company.

Punching machines, steam hammers, flanging clamps, wire rope, sheaves, derrick fittings, general forgings, and machine tools, are described and illustrated in Catalogue C, published by the Cockburn Barrow and Machine Company, Jersey City, N. J.

The National Association of Manufacturers, 170 Broadway, New York city, is mailing a pamphlet entitled "Just a Word," which contains illustrations and descriptions of the offices of the Association.

Portable electrical drills and electric grinders are described and illustrated in a folder issued by the Cincinnati Electrical Tool Company, Cincinnati, O. This company will send its machines on trial if desired.

Catalogue of steamboat work.—A supplementary catalogue has been issued by Marine Iron Works, Station A, Chicago, Ill., which will be sent free on request. It contains illustrated descriptive matter pertaining to some of this company's latest steamboat work.

Nickel steel for fire boxes, boiler plates, rivets, forgings, castings, and other uses, are briefly referred to in a folder issued by the International Nickel Company, 43 Exchange Place, New York city. The subject is one which will be of much interest to users of these specialties.

The Crosby Steam Gauge and Valve Company, Boston, Mass., will send a folder describing the Crosby spring-seat globe and angle valves to anyone desiring the same.

Engines and air compressors.—We are in receipt of a catalogue from the St. Louis Steam Engine Company, St. Louis, Mo., describing the Star vertical self-contained engines and air compressors.

The Heine Safety Boiler Company, St. Louis, Mo., is issuing a catalogue describing the Heine water-tube boiler. These boilers are made for all pressures, duties, and fuels.

Wickes Brothers, 113 Cedar street, New York city, are mailing a monthly stock list of new and second-hand boilers, engines, pumps, generators, and other power equipment and iron-working machinery. Anyone mentioning Marine Engineering can secure these lists.

Every boiler maker, shipbuilder, manager of a dry-dock, foreman of a forge shop, and any other man who has to do with engineering work should send for a free copy of a 16-page catalogue printed in two colors, issued by the Wells Light Manufacturing Company, 44 Washington street, New York, illustrating and describing the Wells light.

Vertical automatic engines are described in Bulletin No. 103, issued by the Quincy Engine Works, Quincy, Ill. This company makes horizontal heavy-duty Corliss engines, vertical engines, motor-driven power pumps, open feed-water heaters, heavy sheaves and band wheels, and special machinery.

"Wouldn't a little wharf be handy right down in front of your summer cottage?" is asked by the Edson Manufacturing Company, 255 Atlantic street, Boston, Mass. The company states in literature it is distributing that one of its hydraulic pile sinkers will build such a wharf at a very small cost, and asks readers to send for its guarantee trial offer.

Marine gasoline engines.—Hall Brothers Gas Engine Works, Philadelphia, Pa., is distributing a catalogue describing and illustrating its marine gasoline engines. The company's aim in designing its engines has been to build machines which will stand the hard usage that engines are subjected to in the hands of the average person. By altering the compression of the Hall engines they may be adapted to the use of alcohol and kerosene.

"Plants and Types" is the subject of an illustrated 32-page catalogue published by the National Electric Company, Milwaukee, Wis. This catalogue is illustrated by numerous halftone engravings and printed on heavy covered paper. It is especially handsome typographically. The preface states that the object of the publication is to give a general idea of the company's electrical product. The company's bulletins deal with the details of construction, and will be forwarded upon request.

Boat Painting Time

PAINT IT WITH

ZINC

The Only White Marine Paint that holds its color, retains its lustre and resists water exposure.

FREE

OUR PRACTICAL PAMPHLETS:

"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects,"
"Paint: Why, How and When,"
"French Government Decrees."

THE NEW JERSEY ZINC CO.
71 BROADWAY, - NEW YORK

We do not grind zinc in oil.

Lists of manufacturers of Zinc White Paints will be furnished on request.

The Steam Turbine

By ROBERT M. NEILSON, Associate Member of the Institute of Mechanical Engineers, Lecturer on Steam and the Steam Engine at the Heginbottom Technical School, Ashton-under-Lyne. *NEW EDITION.* With 27 Plates and 212 other Illustrations. 8vo, 312 pages. $3.60.

"* * * The present volume gives a general history of the steam turbine, traces the points of resemblance between it and other motors, discusses thermodynamic theory and some of the practical details of construction, describes the principal types of steam turbines in commercial use, gives the results of recent tests and tells of the application of the steam turbine to the propulsion of vessels. * * * a book which is timely, instructive and interesting."
Engineering Magazine, New York.

Practical Ship Building

A Treatise on the Structural Design and Building of Modern Steel Vessels. The Work of Construction, from the making of the Raw Material to the Equipped Vessel, including Subsequent Up-keep and Repairs.

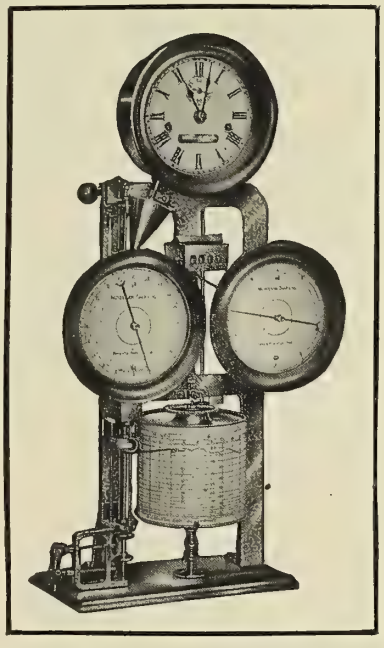
By A. CAMPBELL HOLMS, Member of the Institution of Naval Architects and of the Institution of Engineers and Shipbuilders in Scotland; Surveyor to Lloyd's Register of Shipping. 2 Vols., 8vo. $16.00 NET, Expressage extra.

"One of the most elaborate books upon shipbuilding ever published * * * This work certainly represents the most advanced thought in steel shipbuilding, and every naval architect and shipbuilder should possess a copy for reference, if for nothing more."
American Shipbuilder.

LONGMANS, GREEN & CO., 93 Fifth Ave., N. Y.

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log

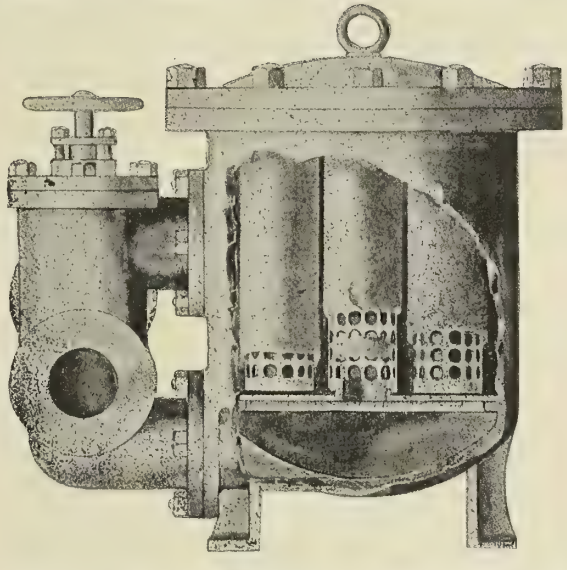


The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

Nicholson Ship Log Co.

204 SUPERIOR STREET, CLEVELAND, OHIO



KEEP YOUR OIL FROM YOUR BOILERS

HERE is a **Feed-Water Filter** and **Grease Extractor** that is the result of years of experience. The water is forced through a substance that absorbs every drop of oil. This substance may be renewed when foul.

USED BY THE UNITED STATES AND BRITISH GOVERNMENTS

The Greacen-Derby Engineering Co.

Manufacturer of

THE BLACKBURN-SMITH PATENT FEED-WATER FILTER AND GREASE EXTRACTOR

Perth Amboy, N. J.

Milling machines and other machine tools are described and illustrated in a 24-page catalogue issued by the Garvin Machine Company, Spring and Varick streets, New York city.

Small belted machines is the subject of Bulletin No. 51, issued by the Crocker-Wheeler Company, manufacturers and electrical engineers, Ampere, N. J.

Re-grinding valves, manufactured by Lunkenheimer Company, Cincinnati, O., are described in a folder this company is issuing. The folder states: "Proof of superiority is found in their adoption as standard by the United States Navy. They are extensively used on all sorts of steam craft."

The pneumatic flue welder and scarfer is illustrated in a circular which will be sent to inquirers by the Draper Manufacturing Company, Port Huron, Mich. This device is one which will appeal to every one of our readers who has to do with the use of boiler tubes, etc.

"The Motor that Motes," and about 100 testimonials from satisfied purchasers, are the subject of a bulletin issued by the Bridgeport Motor Company, Bridgeport, Conn. This company is also distributing a 30-page catalogue which describes and illustrates gasoline motors and launches.

"Eighty-nine vessels have been equipped with our engines and boilers," is the claim made by the Portland Company, Portland, Me., in a folder the company is issuing. This company has patterns of more than forty sizes of single-, compound-, and triple-expansion marine engines from 10 to 1,800 horsepower.

Pneumatic tools and appliances are described in an illustrated folder sent out by the Aurora Automatic Machinery Company, Aurora, Ill. Regarding the company's reversible drills the statement is made that they can be reversed at full speed, a twist of the wrist stopping, starting, or reversing them.

A new yacht gun.—The Hall yacht signal and saluting guns manufactured by the Naval Electric Company, 95 Liberty street, city, are described in an illustrated catalogue this company is distributing. The catalogue states that many well-known yachts have been equipped with this company's guns, among them being the *Kanawa, Hauoli, Nourmahal,* and many others.

"Telephone Annunciator Practice," a few examples of representative installations, is the title of a pamphlet issued by the Electric Gas Lighting Company, 115 Purchase street, Boston, Mass. This company's telephone system is applicable to marine use, and has been installed on the *Dakota* and *Minnesota,* belonging to the Great Northern Steamship Company.

Industrial railways are described in Pamphlet No. 051, published by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y. The main feature of this company's system of industrial railways is stated to be its flexibility—the cars running round curves of a radius of 12 feet as easily as they run on a straight track.

"A Modern Industrial Plant" is the title of Bulletin No. 175, issued by Dodge & Day, consulting engineers, Nicetown, Philadelphia, Pa. The bulletin states that Dodge & Day have made a study of economics as applied to manufacturing establishments, and that the engineering work of their mechanical, architectural, and electrical departments assures harmony of buildings and equipments.

"Cosmos" anti-friction metal is described in a folder mailed by Le Grand O. Robson, 1234 Broadway, Buffalo, N. Y. The claim is made that this metal is not subject to oxidization, that it is durable, double refined, free running, that it makes clean castings, that its quality never varies, and that it is in general use throughout the United States. The folder states: "I guarantee that if Robson's 'Cosmos' anti-friction metal is not satisfactory you may in thirty days after shipment return at my expense all that is unused and I will refund your money."

Composition yoke riveters for boiler, tank, shipbuilding and other structural iron and steel construction, are described in Catalogue No. 3, issued by the Hanna Engineering Works, 820 Ellston avenue, Chicago. In the movement of this riveter the company states that it has combined in a simple form, toggles, levers, and guide links to give the large opening of the toggle joint movement with its gradually increasing pressure until the desired pressure is reached. Then a simple lever movement through a considerable space under uniform maximum pressure.

"Poldi" tool steel is described in a catalogue issued by Peter A. Frasse & Company, 92 Fulton street, New York city, importers of tool steel in bars, rods, sheets, cold rolled strips, wire, drill rods, and boiler makers', machinists' and manufacturers' supplies of all kinds. Regarding the "Poldi extra special very hard steel," the catalogue states that this steel is intended for all kinds of cutting tools not subjected to blows or severe shocks where a very fine edge is desired, capable of wearing for a long time. Directions are given for cutting, forging, and hardening the steel.

Condensing machinery is the subject of a 60-page illustrated catalogue issued by Dean Brothers' Steam Pump Works, Indianapolis, Ind.

Dewhurst slag ladles and cars are described in an illustrated catalogue mailed by the Wellman-Seaver-Morgan Company, Cleveland, O.

Inter-pole variable speed-motors are the subject of Circulars Nos. 2 and 3, Series B., issued by the Electro Dynamic Company, Bayonne, N. J.

"A Short Story of Charles Babbage" is issued in pamphlet form by Wyman & Gordon, manufacturers of drop forgings, Worcester, Mass., and will be sent free upon application.

Burrows' patent lock-nut is illustrated and fully described in a 6-page folder being distributed by the American Lock Nut Company, 134 Congress street, Boston.

Watertown automatic engines are described and illustrated in a catalogue issued by the Watertown Steam Engine Company, Watertown, N. Y.

Gate valves for steam and water, bent pipe work, tools and supplies of all kinds for steam, water, and gas users are described in circulars distributed by the Walworth Manufacturing Company, 132 Federal street, Boston, Mass.

Cork life preservers and ring buoys are illustrated and described in a booklet issued by the Armstrong Cork Company, Pittsburg, Pa. These life preservers, the booklet states, are made in one piece. They contain no pegs, pins, or glue—they are all cork.

"Pipe and Boiler Coverings and their Uses" is the title of an illustrated booklet issued by the H. W. Johns-Manville Company, 100 William street, New York city. Engineers interested in the subject should send for a free copy of this booklet.

Fan outfits are the subject of Circular No. 53, issued by the Rochester Electric Motor Company, Rochester, N. Y. These fans are designed to remove gases, steam, dust, heat, smoke, and also for ventilating and distributing cold or hot air, and for drying purposes.

Blow-off, three-, and four-way valves, self-locking, straightway, and other types of valves are illustrated and described in a neat pocket-sized catalogue distributed by the Homestead Valve Manufacturing Company, Pittsburg, Pa. Copies can be had free upon application by referring to this paper.

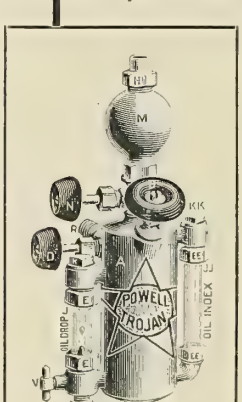
Electric fans are the subject of Bulletin No. 309, issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York city. This bulletin states that there are two ways of keeping cool. The first is to keep away from the heat and the other is to keep the heat away from you. The second problem the bulletin claims to solve.

Waterproof marine glue, manufactured by Siemon & Elting, 194 Front street, New York city, is the subject of a folder which this company is distributing. The folder claims for this glue that it will not crack over the deck, that it will not melt nor become sticky in tropical heat, that it will not oxidize or rot, and that extreme cold has no effect upon it.

"The National Electrical Catechism," published by the National Electric Company, Milwaukee, Wis., will be issued as a serial, and by presenting it in the form of questions and answers, will give in a condensed way much information concerning the application of direct and alternating currents, taken from the most up-to-date experience. This catechism is designed not only for the layman but for the practical engineer, and will be forwarded free upon request.

Allen boiler riveters.—John F. Allen, 320 Girard avenue, New York city, recently received the following letter from the Thompson Iron Works, Philadelphia, Pa.: "Mr. John F. Allen, New York City. Dear Sir—Replying to your favor asking us regarding the 72-inch reach 'Allen Boiler Riveter,' would say that same are working satisfactorily and are undoubtedly superior to any riveters we have ever used. We can especially recommend them for uniform and thoroughly light work. W. W. Posey, superintendent."

YOU all remember the old adage, "He works like a trojan"—so does the Powell New Sight Feed Lubricator. We designed the cup, put it through a series of tests and no name in the vocabulary fitted so well.



You can rest assured

IT WORKS.

THE POWELL "TROJAN"

Being our former Class A, reconstructed and very much improved. The handsomest, best and latest up-to-date Lubricator.

Supply Dealers Everywhere Sell Them.

THE WM. POWELL CO.

Cincinnati, O.

NEW YORK DEPOT 51 Cliff Street

PHILADELPHIA DEPOT 578 Arch Street

BOSTON DEPOT, Cor. High and Congress Streets

HOLLIDAY REVERSING CLUTCH

FOR MARINE ENGINES.

Connection by friction. No noise, as gears are not in use except when propeller is reversed, but are always in mesh. Thrust of propeller holds frictional parts together. Several sizes.

HOLLIDAY MFG. & ENG. CO., CHICAGO, U. S. A.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

UNITED STATES METALLIC PACKINGS

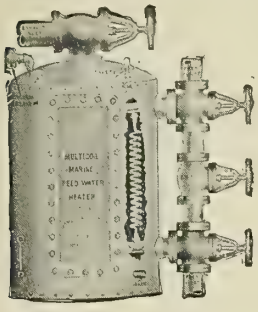
RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

MULTICOIL Marine Feed Water Heater



MORE EFFICIENT THAN A JET HEATER.

ONLY ONE PUMP REQUIRED.

WORKS ENTIRELY AUTOMATIC.

CAN BE LOCATED ANYWHERE CONVENIENT TO FEED LINE.

M'f'd. by JAMES REILLY REPAIR & SUPPLY CO.
229-233 WEST STREET, - - NEW YORK

Water-power equipment is the subject of a catalogue issued by the Wellman-Seaver-Morgan Company, Cleveland, O. Among this company's products are steel works, rolling mills, traveling cranes, gas engines, coal-handling machinery, hoisting machinery, and steel castings.

An improved water-tube cleaner.—The "Demon" water-tube cleaner, made by the General Specialty Company, 101 Seneca street, Buffalo, N. Y., is described in a folder issued by this company. This is a rotary machine and the cutters, which are self-sharpening, are forced out by powerful springs. Their action on the scale is neither of a chopping nor grinding nature, but is that of a direct cutting tool. The outward movement of the cutters is limited by adjustable stops, thus preventing injury to the tube, and relieving the cutters of excessive wear. The cutting tool is mounted on the shaft of the motor and the latter is properly centered in the tube by three centering lugs which insure uniform work on all sides of the tube.

BUSINESS NOTES.

Allen riveting machines.—John F. Allen, 370 Gerard avenue, New York city, reports a large demand for his riveting machines, which, he says, many of the largest concerns throughout the country are using.

Removal notice.—The New York office of the Ashton Valve Company, 271 Franklin street, Boston, Mass., manufacturer of pop safety valves and pressure and vacuum gauges, has been removed from 110 Liberty street to 128 Liberty street.

The Jefferson Union Company, Lexington, Mass., announces that it has purchased the business of making and selling the famous Jefferson Union flange, formerly conducted by the Jefferson Manufacturing Company. With added improvements and facilities, that its orders may be filled promptly, this company starts with a bright future.

Removal notice.—The executive offices of the American Steel Foundries have been removed from 72 Broadway and now occupy the entire eleventh floor of 42 Broadway, New York city.

Mr. J. W. Duntley, president of the Chicago Pneumatic Tool Company, Chicago, Ill., is in Europe on business. The Chicago Pneumatic Tool Company reports that its business shows a heavy increase in all lines, and that its foreign trade is showing encouraging progress.

Falls hollow staybolt iron in Australia and Cuba.—The Falls Hollow Staybolt Company, Cuyahoga Falls, O., announces that it has received large orders for its hollow staybolt iron from Cuba and from the government of West Australia, for use on railroads.

Free leather card case and pocket book.—The Electric Controller and Supply Company, Cleveland, O., is distributing a neat leather pocket book and card case containing a small memorandum book. We understand the company will send this handsome article free to readers mentioning Marine Engineering.

Dayton Pneumatic Tools.—The Dayton Pneumatic Tool Company, Dayton, O., manufacturer of air compressors and machinery supplies, reports that its tools have been adopted by one of the largest shipbuilding concerns in America, which after making a thorough test has within sixty days placed orders for more than fifty "Green" pneumatic hammers.

Free sample of metallic filler.—D. N. Clark, Shelton, Conn., will send a free sample package of his metallic filler to any reader of Marine Engineering. This filler is made especially for blow-holes, cracks, and uneven spots in castings, and, Mr. Clark states, will make the castings look as if there had been no unevenness or spots whatever.

The New York Gear Works, 56 Greenpoint avenue, Brooklyn, N. Y., manufacturers of the ball improved transmission and reverse gears for motor boats and automobiles, report that they are running their factory at full capacity in order to meet the steadily increasing demand for their product. They also state that more than one hundred engine builders are now using their reverse gears. Catalogue will be sent free upon application.

Edward Kendall & Sons, Cambridge, Mass., have sold their boiler plant, rights, etc., to Robert Mumford Boiler Manufacturing Company. The plant will be removed to Framingham, Mass., where a large plant is being built. The main shop is a concrete and steel building, 300 by 150 feet. The offices occupy a building 40 by 40 feet. The new plant will be ready for occupancy in the near future. It is expected that all the late employees of Edward Kendall & Sons will go with the new concern.

New detent motion for the American-Thompson improved indicator.—The American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass., manufacturer of the American-Thompson indicator, states that the greatest improvement ever added to the steam engine indicator is the new improved detent motion which this company uses. This attachment, so the company states, makes the indicator particularly adapted to high-speed marine and stationary steam engines and gasoline engines. With this attachment it is possible to connect the indicator to high-speed reducing motions and stop the drum of the indicator without unhooking the card or stopping the engine.

The Only Wrench

made which will turn pipe lying on a flat surface. It is especially strong when used at its highest range.

Made of Drop Forged Steel and one is guaranteed to **OUTWEAR THREE** wrenches of **ANY OTHER MAKE** on the market.

BULLARD AUTOMATIC WRENCH CO.,
Providence, R. I.

REMOVAL NOTICE.—The Stirling Company, manufacturer of the Stirling-Niclausse water-tube boilers, has removed its executive offices to the new Trinity Building, 111 Broadway, New York city.

THE ALBANY GREASE TRADE-MARK (see advertising page 17).—The value of a trade-mark depends upon its character and the quality of the goods back of it. That of Adam Cook's Sons, 313 West street, New York city, makers of Albany grease, has an individuality which has served to fasten the lubricant it advertises upon the memory of all having to do with the smooth and safe running of machinery, say the makers of this lubricant. "The trade-mark forms a link between the manufacturer and the consumer, guaranteeing the consumer that the goods bearing such mark are made by the same manufacturer as the goods which he previously purchased under the same mark." The trade-mark is therefore a guarantee of quality, and when the quality is of the highest, the importance of the trade-mark is far-reaching and its consideration a matter of interest. The manufacturers state that there is scarcely an engineer who does not know Albany grease and its familiar trade-mark. The mark was first used in 1868, and was designed under the instructions of Mr. Adam Cook, the original owner of Adam Cook's Sons. The letters "O-EZR-IC" have been the cause of much speculation. They signify "Nothing easier I see" than to slide down the plank smoothly and without friction when Albany lubricating compound is applied. During the thirty-seven years that Albany grease has been before the public this trade-mark has been used by the manufacturers on all their business stationary and on all advertisements. Adam Cook's Sons state that they guarantee Albany grease will save from one-half to three-quarters of the cost of lubricating by oils, and that they have on file thousands of testimonial letters received. An Albany grease cup and a sample of Albany grease to test will be sent free to all who mention MARINE ENGINEERING.

Data Cards

So many of our readers have asked us for duplicates of the data cards which are published each month in connection with editorial articles, that we are reprinting them for the convenience of those who wish them for filing.

The cards are white and of the regulation size, three by five inches.

The service began with the cards which appeared in the June, 1903, issue.

As it is impossible to tell in advance how many cards will be issued each month, we shall make the uniform charge of

5 Cents per Card for Subscribers

10 Cents per Card for Non-Subscribers

Payment may be made each month as orders are sent in, and in postage stamps.

Sample cards sent at any time upon request of those who wish to investigate the service.

Marine Engineering

17 Battery Place, - New York, N. Y., U. S. A.

MARINE ENGINEERING
EMPLOYMENT BUREAU

Full information regarding the purposes of this Bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York city.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT OR SUPERINTENDING ENGINEER to shipping concern or factory seeks position; is 30 years old, married, and has had several years experience at sea as chief engineer. Application No. 100.

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CHIEF DRAFTSMAN OR SUPERINTENDING ENGINEER seeks position. Has had extensive experience in several of the best known shipyards, and can furnish the best of references. Application No. 81.

CHIEF DRAFTSMAN OR CHECKER seeks position; is 36 years old; married; was with the Carnegie Steel Company for about three years; later with the National Steel Company, and with the American Bridge Company. Application No. 79.

DESIGNER, EXPERIENCED, of dredges and other types of vessels, seeks position; is 28 years old; has had 10 years of experience in Great Britain and this country in leading shipyards. Application No. 82.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN. Position in a drafting office desired by a young man just finishing his course in naval architecture. Application No. 108.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

DRAFTSMAN—ENGINE, STEAM OR GAS. Forty-three years old; single; born in Germany; has had extensive experience in designing and drafting; has had sea experience. Application No. 32.

DRAFTSMAN—MARINE. Age 34; married; accustomed to intricate drafting work. Application No. 50.

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" 102, Fred. W. Linsemeyer, 210 Clinton St., South Haven, Mich.
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TRADE PUBLICATIONS.

"Notes on Induction, Integrating Wattmeters and their Use," by A. A. Serva, a paper read recently before the meeting of the Colorado Electric Light, Power and Railway Association, is printed in pamphlet form and distributed with the compliments of the Fort Wayne Electric Works, Fort Wayne, Ind.

Albany grease calendar.—Adam Cook's Sons, 313 West street, New York city, are distributing a neat calendar calling attention to Albany grease. The calendar states that to any engineer sending the meaning of the letters "OEZRIC," appearing in the Albany grease trade-mark, the company will send free of charge a grease cut and a sample of its grease. This grease, the calendar states, is adapted to the use of all marine engines and for dynamos, general electrical, and high-speed machinery.

The Bullard automatic wrench is described and illustrated in a booklet issued by the Bullard Automatic Wrench Company, Providence, R. I. The catalogue states that this is the only wrench which will turn pipe lying on a flat surface; that this wrench has the standard range, and that it will outwear three wrenches of any other make. The strain on the jaws is distributed by use on different sizes of pipes thereby increasing the durability of the wrench. Its construction is such as to admit of immediate and positive adjustment to any size within its range. It eliminates the necessity of using nuts or screws in adjustment and requires the use of but one hand, giving the operator free use of the other. It locks and unlocks instantly without cramping or wedging pipe, and the jaws are always in alignment. It is manufactured of drop forged steel and the jaws are made of high-grade tool steel.

New machinists' tools are described and illustrated in a pamphlet issued by the Brown & Sharpe Manufacturing Company, Providence, R. I. Among the tools described are micrometers; caliper sets, which it is stated are inexpensive but accurate and trustworthy reference tools for inspecting the finished product, as well as for general shop use; improved steel beam trammels, "Universal" dividers, a scriber point holder, which has a fine and quick adjustment obtained by a screw enclosed in the beam which engages the knot on the scriber point holders. By pulling up the small knurled knob at the top of the post, the screw is released and the post can be quickly adjusted, the knob springing into place as soon as released; single and double-point scribers; "Tool Makers'" knife-edge straight edges, made for work requiring extreme accuracy. These are made from the best quality of tool steel and are highly finished, the working edges being hardened and carefully lapped after grinding.

Franklin compressors (new patent, type G), manufactured by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., are described in an illustrated 30-page catalogue which this company is distributing. The catalogue states that these compressors, when first introduced about four years ago, attracted attention because of their sound design, massive proportions, and the exceptionally high engineering plane upon which their lines are based. The new type described in this catalogue is designed to meet the demand for simple, efficient, compact, and moderate-priced compressors representing the latest development in this class of machine. The frame is of box-section design with a large factor of safety to withstand the strains when working at maximum load. Great importance is attached by the company to the feature of accessibility, as should the valves cease to perform their proper functions the compressor is either wholly or partially disabled until the trouble is remedied; hence the desirability of immediately accessible valves. Another point that the company calls attention to is the fact that the valve seat is a part entirely separate from the cylinder proper and may be removed, replaced, or renewed whenever occasion requires. Every compressor undergoes before shipment a thorough working test. All steam and air cylinders have indicator connections, and indicator diagrams are taken under exact working conditions; and finally a capacity test determines the capacity of the compressor in actual volume of compressed air delivered.

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When writing to advertisers please refer to Marine Engineering.

A satisfactory punching machine.—The Cochran Barrow and Machine Company, Jersey City, N. J., has received the following letter from G. L. Stuebner Iron Works, Long Island City, N. Y.: "We have used for more than twenty years punching machines of the quick-acting type built by your firm, and the fact that we recently ordered three more machines from you indicates that we consider yours to be the most rapid and the best-built machines for the purpose for which they are intended."

Direct-current generators are described and illustrated in Bulletin No. 46, issued by the Northern Electrical Manufacturing Company, Madison, Wis. This catalogue states: "The unique feature of Northern literature is that in almost every case the apparatus illustrated represents machinery purchased by some one to do something better or cheaper than has been accomplished before." Illustrations are given of a number of Northern generators and their parts, and also of many well-known power houses where these generators are in use.

"Advertising for Profit" is the title of a pamphlet issued by the Manufacturers' Advertising Bureau, 126 Liberty street, New York city. This bureau was established in 1879 by the present proprietor, Benjamin R. Weston, the object being to carry the entire burden of advertising for manufacturers of machinery and supplies who wish this branch of their business placed on a systematic and economical basis, and who have not the necessary time and experience to do it themselves. The pamphlet will be sent free upon request.

The stock lists issued by the Scully Steel and Iron Company, Chicago, Ill., will be found of great value to users of the goods this company handles, such as boiler, tank, and sheet-iron steel, galvanized steel sheets, ship and universal plate, lap-welded steel, and iron boiler tubes, bar iron and bar steel, corrugated and standing seam roofing steel, wire rope, screw punches, twist drills, reamers, tube expanders, machine tools, boiler-makers' hand tools, air compressors, and pneumatic tools. A copy of the company's stock list will be sent free upon application to readers of MARINE ENGINEERING.

Steam brass goods and specialties manufactured by the William Powell Company, 2525 Spring Grove avenue, Cincinnati, O., are described and illustrated in Catalogue No. 8. The catalogue states that this is the fifty-ninth year that the William Powell Company has been manufacturing engineering specialties. The first sixty-eight pages of this catalogue describe and illustrate valves of various sorts. Pages 69 to 91 are devoted to various kinds of lubricators. Oil feeders, oil cups, grease cups, water gauges, steam whistles, cylinder cups, gongs, injectors, etc., are described in the remainder of the catalogue.

Flake graphite for marine lubrication.—The Joseph Dixon Crucible Company, Jersey City, N. J., is distributing a folder which states that flake graphite serves a purpose in marine-engine lubrication which is peculiar to itself. Among the advantages claimed are that this company's flake graphite cools hot bearings and keeps them running continuously cool when other lubricants fail to prevent excessive friction; that when flake graphite is regularly used for the lubrication of main or connecting-rod bearings that there is an end to all friction troubles. Flake graphite used for swabbing rods and valve stems is claimed to save packing and to prevent leakage.

Pop safety and relief valves, pressure and vacuum gauges, are described and illustrated in 120-page Catalogue No. 12, issued by the Ashton Valve Company, 271 Franklin street, Boston, Mass. Regarding the Ashton patents the catalogue states that they cover the most valuable improvements in pop safety valves and gauges made in recent years, and that it has been the aim of the company to devise the most efficient and durable goods possible. The company keeps itself fully informed of all inventions of others, and does not hesitate to purchase such as are of value. This company also manufactures blow-off valves, chime whistles, pressure and vacuum gauges, revolution counters, marine clocks, test pumps, thermometers, and engine and boiler specialties in general.

"The July issue of Air Power," devoted to compressed air and its uses, and published by the Rand Drill Company, 128 Broadway, New York city, contains a complete description, illustrated by diagrams, of a displacement pump, by Prof. E. G. Harris; a description of a recent installation of a compressed air mine haulage system, by A. A. Bowman, M.E.; "The Uses of Compressed Air in the Wood-Working Shop," by W. R. Hulbert, M.E.; a description of the construction of the new Duluth aerial bridge; an article on the Philadelphia high-pressure pumping plant; an article on air compressor foundations, by E. M. Mackie, M.E.; three new inventions, as follows: A new tunnelling machine, a pneumatic stake driver used by Barnum & Bailey, and a device for conveying hot rivets through a metal tube by compressed air.

Saves 10 to 20% of Fuel

Particularly valuable in preventing leakage on piston-valve engines. Has more points that appeal to a competent engineer than any other valve known.

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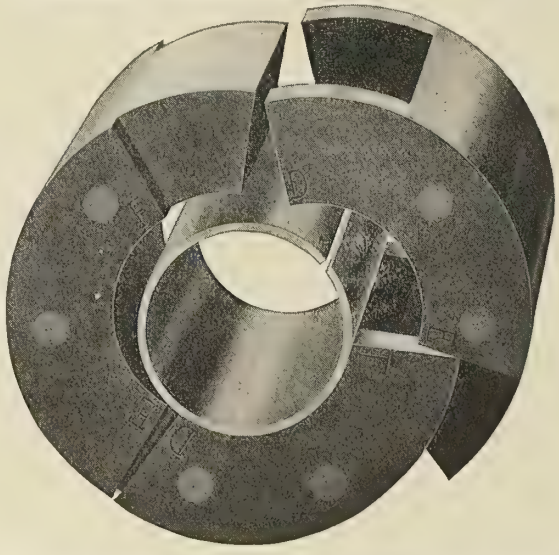
breaks joints in three places. Will always keep shape. Forms a true bearing with a minimum of friction. Never needs regulating, never out of order. Just four simple strong parts. Write for further particulars.



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Among the illustrations will be found (either in the 17 folding plates or in the text) photographic views or detailed drawings of the Engines of the German Imperial Yacht *Hohenzollern;* Engines for Small Armored Cruiser; Engines of the Japanese Armored Cruiser *Yakumo;* Engines of Twin-screw Steamer *Kaiser Wilhelm der Grosse;* Engines of Twin-screw Steamer *Kaiserin Maria Theresa;* Quadruple Expansion Engines of Mail Steamer; Engines of the *Deutschland;* Engines of the *Kaiser Wilhelm II.;* Arrangement of Cylinders in a Destroyer; Yarrow Boilers for Japanese Destroyer; Yarrow Boilers for Dutch Cruisers; Examples of Graphical Methods of Calculation, etc.; whilst a very large number of diagrams are scattered throughout the volume illustrating in great detail the Construction of Auxiliary Engines, Boilers and Pumps.

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NOTHING has ever been published which contains so much every-day information which every engineer ought to know, as this book. In addition to the practical information it contains, it is a most readable story of life at sea. There are twelve chapters, as follows: I, In the Fireroom; II, Hardships of Firemen; III, Night Watch in a Gale; IV, Interview with Barney, the Oiler; V, Some Points on Lubrication; VI, Why Engines are Non-efficient; VII, Salt Water and Boiler Scale; VIII, Cleaning Boilers in a Tropical Port; IX, How to Use Indicators; X, Simple Explanation of the Indicator; XI, Overhauling the Machinery; XII, Painting the Pipe System. 100 pages. By C. A. McAllister. **Price $1.00 Postpaid.**

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Variable speed motor drives, capable of being worked in with regular shop equipment, are manufactured by the Northern Electrical Manufacturing Company, Madison, Wis. This company has a special bulletin devoted to the application of motor drive to machines originally built for belted operation. A copy of this bulletin will be sent free upon application.

The marine gasoline motors built by the Mianus Motor Works, Mianus, Conn., are described in an illustrated catalogue this company is distributing. Among the advantages claimed for this motor are simplicity, ease in starting, perfect regulation of speed, accessibility, improved ignition and lubrication, absence of a reversing propeller or clutch, and perfect finish.

A free souvenir catalogue will be sent free to every reader of MARINE ENGINEERING who will write to the Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill. This catalogue is pocket size, neatly printed, and contains nearly fifty pages which are devoted exclusively to handsome illustrations and concise descriptions of the several kinds of pneumatic tools which this company manufactures. They include piston air drills, pneumatic hammers, air turbines, flue rollers, etc.

Boiler room economy is the subject of a pamphlet issued by the William B. Pierce Company, 327 Washington street, Buffalo, N. Y. The pamphlet states: "Boiler scale is costing you more money than your fuel bills come to. You can't fight scale by chemical means." The pamphlet states that the Dean boiler-tube cleaner, manufactured by the William B. Pierce Company, will thoroughly clean the tubes, and that the company will loan the cleaner free of charge in order that the user may form his own judgment of the value of the device before purchasing.

Steering wheels, steering quadrants, launch, and other wheels, are described in illustrated catalogue No. 22, issued by the Edson Manufacturing Company, 266 Atlantic avenue, Boston, Mass. Regarding its side-steering quadrant the catalogue states that this will appeal to the man who runs his motor and controls the direction of the boat at the same time. The quadrant is provided with a handle, the rim of which contains two scores to carry the forward and aft tiller rope. At the end of the quadrant rim are thumb screws by which the slack of the rope is taken up.

Globe, angle, cross, 60°, and check valves, are described and illustrated in a catalogue issued by the Hancock Inspirator Company, 85 Liberty street, New York city. The catalogue states that these valves are designed to meet the demand of steam and mechanical engineers for high-grade valves adapted to the highest steam pressures. All this company's valves are tested and guaranteed tight under a hydraulic pressure of 1,000 pounds, and are capable of standing an ultimate stress of 4,000 pounds without distortion, which, when placed under a steam pressure of 500 pounds, would leave a large factor of safety.

Lifting magnets are the subject of an illustrated 24-page pamphlet issued by the Electric Controller and Supply Company, Cleveland, O., The pamphlet states: "You can save 25 to 50 percent by using lifting magnets in handling pig iron, steel or iron scrap, baled or loose tin scrap, bolts, nuts, rivets, plates, billets, blooms, slabs, cold ingots in quantities, rails, pipe sheets, or other special shapes in quantities." The No. 1 pig magnet, the pamphlet states, will handle an average of 500 pounds of pig iron per lift, no labor being required except that of the crane operator. Regarding the factor of safety the pamphlet states: "Magnets never slip; chains often slip."

Whittelsey double-frame construction, for the hulls of high-grade gasoline launches, is described and illustrated in a folder issued by the Williams-Whittelsey Company, Long Island City, N. Y. The folder states that this construction is that used in building the 60-foot racing auto boat *Standard*, which is said to be as sound as ever after two racing seasons. The construction in question consists of two spring frames with longitudinals bound between them and through-riveted—the planking edges landing on the longitudinals to the full length of the hull. A boat so constructed will, it is claimed, hold form and remain rigid independent of its planking or ties, thus allowing the planking to be reduced to a minimum.

MULLINS STAMPED STEEL BOATS CAN'T SINK

Made of Rigid Steel Plates, Air-Tight Compartments in each boat.

Complete Catalogue illustrated, free on request.

The Prince, 14 Ft. long, Price, $30.00

Staunch Durable Reliable

Always dry and comfortable. Do not crack, open and leak.

THE W. H. MULLINS CO., 184 FRANKLIN STREET, SALEM, OHIO

Automatic grab buckets, manufactured by the Browning Engineering Company, Cleveland, O., are illustrated and described in Bulletin No. 7 this company is distributing.

The Taunton-New Bedford Copper Company, New Bedford, Mass., is distributing literature calling attention to its copper and non-corrosive yellow metal, which, it states, is unequal for high-class marine work.

A time saver in the machine shop.—Leveling jacks are described in a folder issued by the Binsse Machine Company, Newark, N. J. The folder states that these jacks are adjustable to any desired refinement, that they are perfectly solid and unyielding under the strap pressure, and that one can raise or lower any point of the work. This last point, it is claimed, is a great advantage.

A "Treatise on Tool-Room Grinding and Grinding Machines," is the latest publication issued by the Cincinnati Milling Machine Company, Cincinnati, O. It is neatly printed and fully illustrated, and contains much valuable information regarding the grinding of tools and grinding machines. Every reader of MARINE ENGINEERING wishing a copy can have one sent free by mentioning this publication.

Forstner bits, manufactured by the Progressive Manufacturing Company, Torrington, Conn., are described in a folder this company is sending out. The statement is made that "the Forstner bit, unlike other bits, is guided by its circular rim instead of its center, so that it will bore any arc of a circle, and can be guided in any direction, disregarding the grain or knots, and leaving a true polished surface."

The Shaw propeller, manufactured by the Shaw Propulsion Company, 52 Broadway, New York city, is described and illustrated in a folder this company is distributing, which states that this wheel has many novel features; that it has less resistance in the water, and the least amount of friction, thus giving it the greatest driving power. It is claimed that this wheel has the same power on the reverse as on the forward movement.

A "Book News Service" is issued by the Derry-Collard Company, 256 Broadway, New York city. The company states that there will be no periodical date for its appearance, but that it may be published daily, weekly, or monthly as necessity may determine. It will contain short reviews of new books of interest to engineers, boilermakers, and technical men. Anyone writing the Derry-Collard Company and mentioning MARINE ENGINEERING will be put on the free mailing list.

Power boats, rowing and sailing craft, two- and four-cycle motors, speed launches, and cabin cruisers, are described and illustrated in a 40-page catalogue published by the Fairbanks-Grant Manufacturing Company, Ithaca, N. Y. The catalogue states that this company has a new factory equipped with up-to-date machinery, that it employs only the most skillful mechanics, and that it has perfected a new device which places the motor under perfect control at all times and by which the speed of the boat can be increased, decreased, or reversed instantly.

The American consul at Prague, Bohemia, writes to MARINE ENGINEERING asking that manufacturers and dealers who wish foreign trade forward to him copies of their catalogues and all trade literature for filing in the consulate. The consul asks that each correspondent give the firm or company name, street, city, and cable address, codes used, export discounts and terms, languages of correspondents, references or commercial rating, nature of exports, list of foreign branches and agents, together with complete information permitting immediate sales. All of this information will be filed without charge, and made use of to the best advantage possible for correspondence.

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on any boat, ship or steamer? There is only one white pigment that will stand the service—why use any other?

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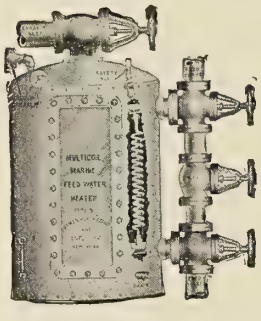
Lists of manufacturers of Zinc White Paints will be furnished on request.

MULTICOIL Marine Feed Water Heater



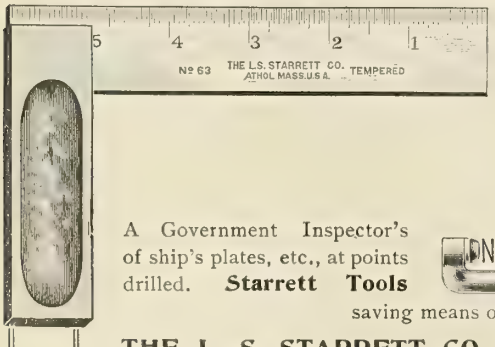
MORE EFFICIENT THAN A JET HEATER.

ONLY ONE PUMP REQUIRED.

WORKS ENTIRELY AUTOMATIC.

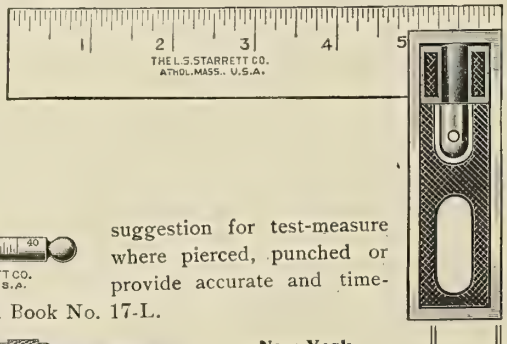
CAN BE LOCATED ANYWHERE CONVENIENT TO FEED LINE.

M'f'd. by JAMES REILLY REPAIR & SUPPLY CO.
229-233 WEST STREET, - - NEW YORK



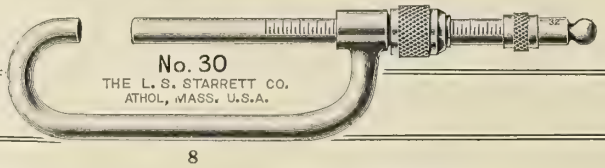
Through the Hole

For exact measure



A Government Inspector's suggestion for test-measure of ship's plates, etc., at points where pierced, punched or drilled. **Starrett Tools** provide accurate and time-saving means of meeting mechanical requirements. Read Book No. 17-L.

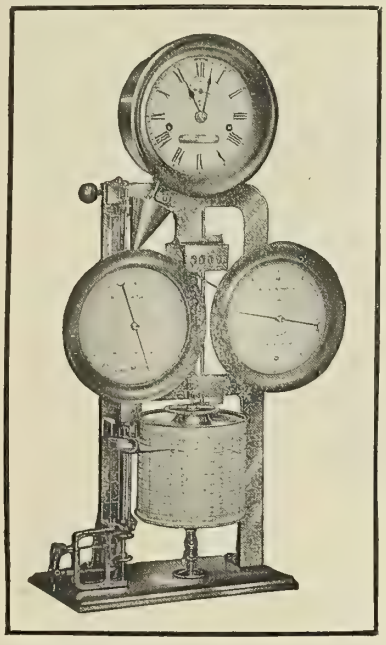
THE L. S. STARRETT CO.
Athol, Mass., U. S. A.



New York
Chicago

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

Nicholson Ship Log Co.

204 SUPERIOR STREET, CLEVELAND, OHIO

A Few Unbound and Unstitched Volumes of

MARINE ENGINEERING

Remain unsold. As long as they last they will be sold as follows:

1902 (Vol. VII.) - -	**$1.00**
1903 (Vol. VIII.) - -	**1.00**
1904 (Vol. IX.) - -	**2.40**
	$4.40

Three Dollars

gets the Set. You Pay Expressage.

If bound in black cloth with leather corners and back, add two dollars to the price of each Volume.

MARINE ENGINEERING

17 Battery Place, - - New York City

BUSINESS NOTES.

"THE ONLY WRENCH MADE which will turn pipe lying on a flat surface," is the claim made by the Bullard Automatic Wrench Company, Providence, R. I., for its drop-forged steel wrench.

THE DAYTON PNEUMATIC TOOL COMPANY, Dayton, O., has opened an office at 421 Market street, San Francisco, Cal., which will be in charge of Mr. Henry Engels.

H. A. ROGERS COMPANY, 19 John Street, New York city, manufacturer of Moncrieff Scotch gauge glasses, engineers' supplies, and general machinery agents, states that it has recently ordered several car loads of machine tools from Cincinnati concerns.

SEXTANTS, OCTANTS, BINNACLES, boat binnacles, peloruses, liquid compasses, dry compasses, and other nautical instruments are manufactured by the Keuffel & Esser Company, 127 Fulton street, New York city. A nautical catalogue will be sent free upon application.

"THE DUNTLEY AIR-COOLED ELECTRIC DRILLS are a valuable addition to the equipment of all vessels and shipyards," is stated by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. This company makes a complete line of pneumatic appliances and storage batteries.

THE BOX COMBINED HAND AND STEAM WINDLASS is advertised by Alfred Box & Company, Front, Poplar, and Canal streets, Philadelphia, Pa,, who make the statement that this is the most efficient type of windlass on the market, and that it takes up less room on deck and costs less than other makes.

THE BLACKBURN SMITH FEED WATER FILTER and grease extractor is advertised by the Greacen-Derby Engineering Company, Perth Amboy, N. J. The company states that this device is the result of years of experience. That the water is forced through a substance (which may be renewed when foul) that absorbs every drop of oil.

A SATISFACTORY LUBRICANT.—Adam Cook's Sons, 313 West street, New York city, have received the following letter from L. P. Harvey, Clare, Ill., regarding a test of Albany grease: "I put the cup on the wrist-pin of an engine that had always given much trouble, and immediately the pin ran cool, and has done so ever since, although it is badly overloaded."

UNITED STATES METAL POLISH is manufactured by George W. Hoffman, 295 East Washington street, Indianapolis, Ind. Mr. Hoffman states that this polish works quickly and easily and keeps its luster, and that it has been on the market for twenty years. A free sample will be sent to all applicants mentioning MARINE ENGINEERING.

"A GOOD, SUBSTANTIAL BOLT, for use where the fire is hot and the strain severe," is advertised by the Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y., which states that it makes everything in bolts and nuts, cold-punched, case-hardened, trimmed, and semi-finished nuts for use in shipyards, engine shops, etc.

FREE SAMPLE OF MAGNETIC PACKING.—That Smooth-On cement rubber packing is magnetic may be proved by any one who will send to the Smooth-On Manufacturing Company, Jersey City, N. J., for a free sample of its cement rubber packing, which will be forwarded in a neat leather case together with a small magnet, to those who mention MARINE ENGINEERING. It will be found that this packing, though as smooth and soft as rubber, contains so much iron that the magnet will hold it suspended in the air.

NICHOLSON SHIP LOGS.—The Nicholson Ship Log Company, 204 Superior street, Cleveland, O., in advertising its ship log states: "You do not have to guess at the speed of your vessel if equipped with the Nicholson log. The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance traveled is correctly shown on a counter. Guaranteed to register within 2 percent. No expense to operate if not abused. Wind the clock once a day and it will work automatically."

THE DIAMOND STEAM FLUE BLOWER (Hodge patent) is advertised by the Power Specialty Company, 520 Washington street, Detroit, Mich. This blower will be sent on trial, and the claim is made that by its use a boiler can be cleaned in five minutes, and that it absolutely prevents the accumulation of scale. It is used by the Pittsburg Steamship Company, the Standard Oil Company, the Montreal Transportation Company, and by many other transportation companies.

"ALWAYS MAINTAINS ITS WORLD-WIDE REPUTATION," is the statement made regarding P. P. P. packing, manufactured by the Quaker City Rubber Company, Philadelphia, Pa. The claim is made that this is the only real self-setting packing made tight by the pressure of steam trying to escape, and that it is only tight during that portion of the stroke when this condition exists. In the language of engineers, so states the company, "self-setting" means the packing that once put in requires no attention for months at a time. Such a claim is made for the P. P. P. packing.

"Saves one man and tons of coal," is the statement made by the Northern Electrical Manufacturing Company, Madison, Wis., regarding its motor-driven hoists for yard service. Hoisting service is but one class of work for which this company builds special motors, other motors being built for machine tools, pumps, blowers, compressors, fans, etc.

An indicator free.—The France Packing Company, Tacony, Philadelphia, Pa., manufacturer of metallic fibrous and sheet packing, will send any engineer mentioning Marine Engineering particulars telling how he can obtain, free of cost, a Crosby, Tabor, or American-Thompson indicator, and also five hundred other things, which, the company states, include every article, tool, or device used by engineers.

Bearing metal and graphite, ribboned and pressed into rings, is advertised by the Pennsylvania Metallic Packing Company, Pittsburg, Pa. The company states that this packing is flexible, sensitive and frictionless, that no grease or adhesive substance is used, and that it is especially suitable for superheated steam, its melting point being 1,200 degrees.

"The reason your dealer tries to sell you a 'just as good' packing, is because his profits are 50 percent greater on the imitation kind," says the Peerless Rubber Manufacturing Company, 16 Warren street, New York city, manufacturer of rainbow packing. The company states that this packing cannot blow out, and that it makes a perfectly tight joint for air, steam, hot or cold water, gas, oil, or ammonia.

Chain pipe wrenches.—J. H. Williams & Company, manufacturers of drop forgings, Brooklyn, N. Y., state that they have two kinds of chain to sell with the "Vulcan" chain pipe wrench, but that one of them is superior to the other. The company's flat link chains are from 25 percent to 50 percent stronger than its cable chains, which the United States and British governments have pronounced "unsurpassed."

Katzenstein packing for the Russian navy.—L. Katzenstein & Company, 358 West street, New York city, announce that they have sent a large consignment of their metallic packing to the Russian navy yards at Nicolaieff, and that they have also shipped a large order to A. G. Tecklenborg Company, Gesstemunde, Germany. In addition to this Katzenstein & Company fitted with their packing the main engines of the four ferryboats recently built for the Lackawanna line.

The National Electrical Contractors' Association's fifth annual convention will be held in connection with an electrical exhibition at Mechanics' Hall, Boston, Mass., July 15 to 22. The exhibition will include standard and special supplies and apparatus used for electrical house work, lighting, power work, and general construction. Requests for information and applications for space should be mailed to Chester Campbell, manager, 5 Park square, Boston, Mass.

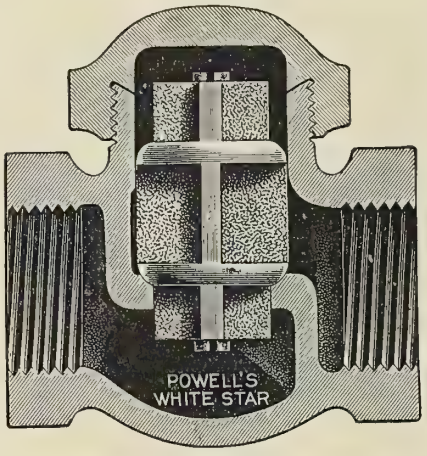
Falls Hollow staybolt.—At the Master Mechanics' convention, Manhattan Beach, N. Y., in June, the Falls Hollow Staybolt Company, Cuyahoga Falls, O., exhibited hollow staybolt bars 10 feet long in various sizes, and samples of the raw material, which is a mixture of imported Swedish and native charcoal iron. The company also displayed threaded pieces of whole and solid iron, bent flat on themselves, the samples being nicked and broken to show the fiber of the finished product, and samples smashed flat endwise under a steel hammer, to demonstrate that Falls staybolt iron is not seamy.

A well-known submarine compound.—Samuel J. Williams & Company, 70 Broad street, New York city, report that they have been making anti-corrosive and anti-fouling compounds for iron and steel vessels for sixty-one years. The Williams compound is recognized as being of especial value in tropical waters. It is used by the United States navy and revenue cutter service, by the Old Dominion Line, the Red D Line, by the Pacific Mail Steamship Company, and by many other lines. The manufacturers have numerous agents and can give estimates on docking and painting at almost any dock in the world.

"WHITE STAR"

Reversible and Re-Grinding

CHECK VALVE



Disks in one piece with double seating heads.

Both ends made to gauge.

Economical because disk is reversible and saves putting in a new valve.

Will withstand a temperature of 2,000 degrees.

Simple and convenient — Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

THE WM. POWELL CO.

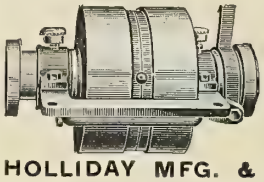
Everything in the steam line for the boiler and engine room

CINCINNATI, OHIO, U. S. A.

New York Depots, 51 Cliff St. Philadelphia Depot, 515 Arch St.

Corner High and Congress Streets, Boston

HOLLIDAY REVERSING CLUTCH



FOR MARINE ENGINES.

Connection by friction. No noise, as gears are not in use except when propeller is reversed, but are always in mesh. Thrust of propeller holds frictional parts together. Several sizes.

HOLLIDAY MFG. & ENG. CO., CHICAGO, U. S. A.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.

The Benjamin Electric Manufacturing Company, Chicago, Ill., manufactures electric clusters which are national code standard. The socket elements are on one base, and there are no wires. It is said that the cost of installation is greatly reduced, and that these clusters are especially adapted for use on shipboard.

The Equilibrium circulator is advertised by H. Bloomsburg & Company, 700 Dolphin street, Baltimore, Md. The company states that its circulator is just as important as an injector; that it prevents leaks of seams and rivets, that it prevents the deposit of sediment and the formation of scale, and that it increases the steaming capacity 15 percent.

If there is any place on the face of the earth where space is at a premium it is on shipboard. That is why, says the B. F. Sturtevant Company, Hyde Park, Mass., that the Sturtevant vertical cross-compound generating sets represent the maximum of efficiency and the minimum of weight and space occupied for a given output. The statement is made that the 100 Kw. set, typical of a line of five sizes ranging from 17 1-2 Kw., showed a combined efficiency of more than 86 percent operated with less than 31 pounds of water per Kw. hour, weighed less than 190 pounds per Kw. of continuous output, and was compressed into nearly 10 percent less space than was allowed by the specifications.

New tool steel.—The Sheffield Steel Makers, Limited, Sheffield, England, are putting on the market a new kind of tool steel known as "Unor." This steel is intended not so much for rapid-cutting tool steel as to occupy an intermediate position, thus giving it many requirements which have not hitherto been well supplied in tool steel. The cutting and wearing capacity of this steel, it is believed, ranges between that of the old type of self-hardened steel and the best of the modern high-speed steel. "Unor" is sold at a price far below that usually charged for rapid-cutting tool steel. The Sheffield Steel Makers are also putting on the market a new kind of tool steel which is intended to maintain a cutting edge longer than anything of the kind hitherto produced. Some remarkable tests are reported of this new steel, and any information regarding it or "Unor" can be had upon inquiry of the manufacturers by referring to Marine Engineering.

Ship and yacht furnishings, carpets, furniture, draperies, silverware, bed and table napery, cushions, galley outfits, and pantry stores, are furnished by Siegel Cooper Company, Sixth avenue, New York city, which makes a specialty of promptness and attention to detail.

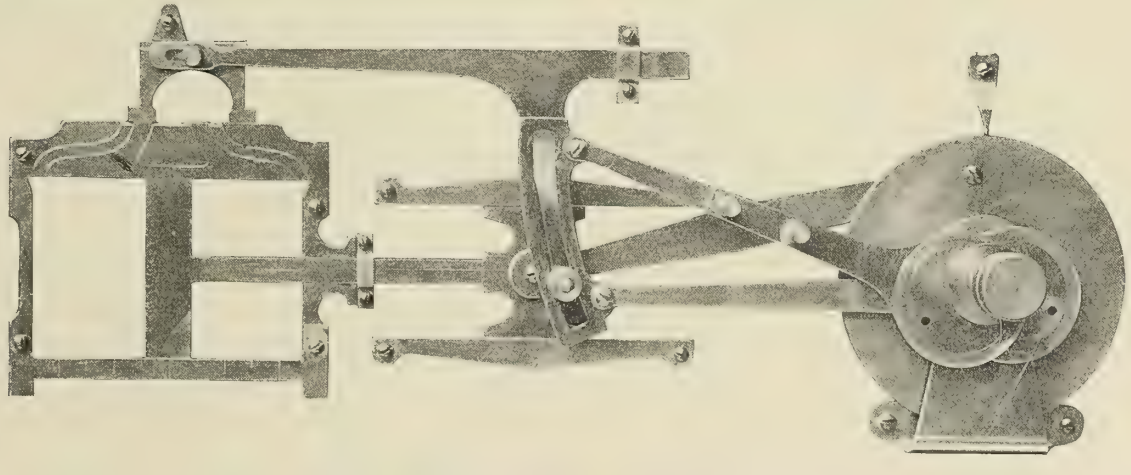
The strength, durability, non-elasticity, flexibility, and non-rotting qualities of Durable wire rope have made it famous the world over for hawsers, tiller ropes, etc., says the Durable Rope Company, 26 Atlantic avenue, Boston, Mass. The statement is made that when stays and rigging of durable wire rope have once been made taut and ship-shape, that they remain so. A free sample will be sent to any applicant mentioning Marine Engineering.

J. H. Williams & Company, manufacturers of drop forgings, 150 Hamilton avenue, Brooklyn, N. Y., have opened a branch store at 19 South Clinton street, Chicago, Ill., where the company will carry in stock a complete line of its drop forged wrenches, Vulcan chain pipe vises, lathe dogs, eye bolts, and other drop forged specialties, including specimens of the company's special drop forgings, illustrating the variety of work it is doing in this line. J. H. Williams & Company invite all their friends to call at the new store, and suggest that orders and correspondence from the middle west be forwarded to the Chicago office.

A new type of light-draft, twin-screw steamboat.—The Marine Iron Works, Station A, Chicago, Ill., reports that it has received an order from a foreign country for an unusual type of light-draft, twin-screw steamboat. The first of these boats, which will be but 55 feet in length, is to be made of galvanized steel throughout and fitted with two fore-and-aft compound condensing high-speed engines, with a water-tube boiler burning crude oil and allowing 250 pounds steam pressure. The machinery is capable of indicating 70 horsepower. The twin propeller wheels will work in tunnels of unique arrangement entirely different from the ordinary type of "tunnel boat." This boat will draw but 18 inches of water although 24-inch propeller wheels of special design will be submerged in the tunnels. In addition to the light draft and increased efficiency of the wheels, the tunnel arrangement provides against accident from snags or other obstructions.

Valve and Link Motion

To any reader of Marine Engineering who will send us **Three New Subscriptions,** and $6 domestic (31/6 foreign), we will send free of charge a valve and link motion model.



This is the most practical, the simplest and the best device ever offered to study the working of a Marine Engine.

The model will be sold for $6 domestic (31/6 foreign).

MARINE ENGINEERING, - - - 17 Battery Place, New York

CONSOLIDATION OF DRILL COMPANIES.—The Rand Drill Company, 128 Broadway, New York city, and the Ingersoll-Sergeant Drill Company, 26 Cortlandt street, New York city, have united and formed a new corporation under the name of the Ingersoll-Rand Company, with a capital stock of $10,000,000. The factories of the two companies are located at Phillipsburg, N. J.; Easton, Pa.; Tarrytown, N. Y.; Painted Post, N. Y.; Ossining, N. Y.; New York city, and Sherbrooke, Quebec, Canada. The officers are: W. L. Saunders, president; George Doubleday, Jasper R. Rand, John A. McCall, J. P. Grace, George R. Elder, W. R. Grace, vice-presidents; and F. A. Brainerd, secretary. The main offices of the company will be at 26 Cortlandt street, New York city.

A NEW SQUARE AUGER AND MORTISING MACHINE has been placed on the market by the American Compressed Steel Company, Arcade Building, Philadelphia, Pa. The claim is made that this is the only auger that makes a square hole or mortise with a rotary motion; that it is the only auger that bores out wood in one portion leaving clean-cut corners; that it is the only auger that is lubricated continually from an oil reservoir; that it is the only tool with which one can make a mortise at any desired angle on the timber, or endwise of the grain; that it is the only auger that will cut any kind of a knot without injury; that it is the easiest auger to sharpen, and that it is also a superior tool for boring round holes. This auger has received a gold medal from the Nineteenth Triennial Exhibition of the Massachusetts Charitable Mechanical Association, which reported: "During this exhibition the auger was worked in knotty maple, oak, spruce, ash, chestnut, hard pine and white wood. The members of the board of judges were all practical mechanics with large experience in wood-working machines, and their opinion is expressed by the award of the gold medal."

Data Cards

So many of our readers have asked us for duplicates of the data cards which are published each month in connection with editorial articles, that we are reprinting them for the convenience of those who wish them for filing.

The cards are white and of the regulation size, three by five inches.

The service began with the cards which appeared in the June, 1903, issue.

As it is impossible to tell in advance how many cards will be issued each month, we shall make the uniform charge of

5 Cents per Card for Subscribers

10 Cents per Card for Non-Subscribers

Payment may be made each month as orders are sent in, and in postage stamps.

Sample cards sent at any time upon request of those who wish to investigate the service.

Marine Engineering

17 Battery Place, - New York, N. Y., U. S. A.

MARINE ENGINEERING EMPLOYMENT BUREAU

Full information regarding the purposes of this Bureau, together with instructions regarding registration, etc., furnished upon application to MARINE ENGINEERING Employment Bureau, 17 Battery Place, New York city.

All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT OR SUPERINTENDING ENGINEER to shipping concern or factory seeks position; is 30 years old, married, and has had several years experience at sea as chief engineer. Application No. 100.

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CHIEF DRAFTSMAN OR SUPERINTENDING ENGINEER seeks position. Has had extensive experience in several of the best known shipyards, and can furnish the best of references. Application No. 81.

CHIEF DRAFTSMAN OR CHECKER seeks position; is 36 years old; married; was with the Carnegie Steel Company for about three years; later with the National Steel Company, and with the American Bridge Company. Application No. 79.

DESIGNER, EXPERIENCED, of dredges and other types of vessels, seeks position; is 28 years old; has had 10 years of experience in Great Britain and this country in leading shipyards. Application No. 82.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN. Position in a drafting office desired by a young man just finishing his course in naval architecture. Application No. 108.

DRAFTSMAN seeks position; has had long experience in designing, including main and auxiliary engines for torpedo-boat destroyers for the British Admiralty, and some of the best suction dredges that have been built in Great Britain. Best of references in this country. Application No. 111.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

DRAFTSMAN—ENGINE, STEAM OR GAS. Forty-three years old; single; born in Germany; has had extensive experience in designing and drafting; has had sea experience. Application No. 32.

DRAFTSMAN, ESTIMATING, seeks position; age 30; single; graduate of the Virginia Polytechnic Institute; has had several years' experience in well-known shipyards. Application No. 110.

DRAFTSMAN—MARINE. Age 34; married; accustomed to intricate drafting work. Application No. 50.

DRAFTSMAN, MECHANICAL, capable of designing and computing, age 31, seeks position in connection with hull and engine work. Has had experience in government work; also in well-known shipyard. Application No. 114.

DREDGE DESIGNER seeks position; has had 10 years' experience in designing and building dredges of all kinds. Application No. 99.

DREDGE OR SHIPBUILDER who has had 20 years of experience in calculating and designing in connection with dredges and other vessels seeks position. Application No. 83.

GANG FOREMAN IN ERECTING SHOP OR FITTING UP ENGINES IN SHIPS. Age 37; married; has been with present employers 15 years. Application No. 26.

GAS ENGINE DRAFTSMAN seeks position; is 27 years old; married; technical-school graduate; has had several years' sea experience, as well as a number of years of special work in connection with gas engines; has had experience in building these engines up to 1,500 horsepower; thoroughly posted on all office detail and laying out work. Application No. 97.

GAS ENGINE OPERATOR. Age 28; single; born in Germany; 7 years' experience; understands naphtha engines of Gas Engine and Power Co. thoroughly. Application No. 48.

HULL SUPERINTENDENT. Age 42; married; born and learned trade in Scotland, studied at Glasgow School of Naval Architecture, experienced as foreman; surveyor and hull superintendent. Application No. 27.

LAUNCH AND YACHT SUPERINTENDENT AND DESIGNER. Age 34; married; has had about fifteen years' experience in some of the best known launch and yacht building establishments in the country. Application No. 62.

LEADING DRAFTSMAN OR SUPERINTENDING ENGINEERING FOR STEAMSHIP LINE. Age 34; married; studied Massachusetts Institute of Technology; 11 years' experience in drafting and other marine work. Application No. 53.

LOFTSMAN. Age 33; single; has had eight years' experience as loftsman, foreman, and draftsman. Application No. 44.

MARINE MAN, EXPERIENCED, with excellent recommendations seeks outside position in shipyard or to represent some manufacturing concern or launch builder; is 39 years old and single. Application No. 78.

MASTER OF STEAM YACHT. Age 37; married; born in Norway; has license as master and pilot on ocean steamer; has commanded several well-known yachts. Application No. 40.

MASTER OF SHIP OR YACHT. Age 40; 7 years' experience; has first class master's license for all ocean and coastwise steamers and pilot for most harbors on the coast. Application No. 39.

MASTER OR PIER SUPERINTENDENT. Age 38; has spent whole life at sea and has British Extra and American master's certificate; pilot New York and San Francisco; experience in handling men and cargoes. Application No. 35.

MASTER AND PILOT. Age 44; single; 11 years' experience; has license for 500 tons as master and pilot ocean and inland for New York, New Haven, and New London districts. Application No. 20.

MASTER OR PILOT seeks position, preferably on a houseboat. Has had 43 years' sea experience in all parts of the world. Is well acquainted with the inside route from New York to Florida, and with all the waters of Florida and adjacent lines. Best of references. Application No. 115.

OILER. Who has had experience on one of the well-known coastwise lines seeks position. Application No. 64.

OILER seeks position to learn marine engineering; is single; 22 years old; well educated and has had considerable mechanical experience. Application No. 77.

THE
NEW METAL WORKER PATTERN BOOK

A TREATISE on pattern cutting as applied to all branches of sheet metal work. A most elaborate and complete work for the use of sheet metal pattern cutters. Apprentices and students will find the entire subject presented in a manner to facilitate systematic study. Triangulation is treated systematically and in a way to meet the practical needs of the trade. The greatest care has been taken with the explanatory portions of the work, enabling the student, without any previous training in mathematics and drawing, to become a finished pattern cutter. By Geo. W. Kittredge. 430 pages; 744 illustrations; $5.00.

FOR SALE BY

MARINE ENGINEERING, 17 Battery Place, New York

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line or fraction thereof, for the first insertion, and twenty-five cents per line for each subsequent insertion. Lines average ten words each. The heading counts as a line, as does also the address.

DRAFTSMEN WANTED.

Large concern building excavating and railway machinery wants to correspond with first-class mechanical draftsmen with view to filling future vacancies as they occur. Wants men now employed. Give full experience and reason for changing. Shop experience great advantage. All letters acknowledged and held confidential. M. M., care MARINE ENGINEERING, 17 Battery Place, New York.

POSITION WANTED.

Designing Marine Engineer, 41 years of age, married, desires to change position as Chief Engineer or Chief Draftsman. Fifteen years with present employers. Active, energetic, capable of handling a large number of men. Excellent references and good reasons given for wishing to change. Address ENGINEER, care MARINE ENGINEERING, 17 Battery Place, New York.

STEAM-TURBINE MOTORS, DYNAMOS, blowers, centrifugal pumps, and electro-motor centrifugal pumps are advertised by the De Laval Steam Turbine Company, Trenton, N. J.

THE PASSING OF THE TANK BOILER.—In discussing this subject, Mr. Egbert P. Watson says: "It is an easy matter to build a new steam boiler, especially one of a new type. This must be true, or else there would not be so many amateur engineers rushing in where professional engineers fear to tread. It seems to be chiefly a matter of drawings and blue prints. If these last are numerous enough and so clear that a boiler maker cannot make mistakes, the worst seems to be over. The resistance of heating to grate surface is all right and such as prescribed by the best modern practice. The products of combustion can go only one way square upon the heating surface, and these last where sheets or tubes are combined to take up the heat and pass it on to the water. The facts in the case of steam boilers are that the best designers are sometimes at fault in exploiting a new one. Sometimes a very slight thing which is overlooked will put a boiler out of commission. It requires time to develop a new type of boiler; weak points have to be eliminated and strong ones brought out. The Babcock and Wilcox boiler was a new type forty years ago, and it will surprise many who have not given the subject much attention to learn that it has been in existence so long. In forty years, by assiduous investigations into causes of unsatisfactory working in all directions, and by the employment of the best engineering talent that could be obtained, it has been brought to its present efficiency."

CHICAGO PNEUMATIC TOOLS IN EUROPE.—Mr. J. W. Duntley, president of the Chicago Pneumatic Tool Company, Chicago, Ill., has returned from Europe, bringing with him orders for 3,400 tools for shipment from America, representing a value of over $300,000. Mr. Duntley states that the trip was the most successful he has ever experienced, and owing to the growing demand for pneumatic tools in England and on the continent, it was found necessary to extend the organization of the foreign business. In order to accomplish this the factory and business of E. G. Eckstein, Berlin, Germany, and that of the Lencke Company, St. Petersburg, Russia, were purchased and will be operated for the purpose of meeting these requirements in the continental countries. Pneumatic tools are rapidly being introduced in shipbuilding and other industries in Russia, Austria, Germany, Italy, and France, and a large increased demand for the various devices is anticipated. The line of electric drills exhibited and demonstrated was extremely successful, and large orders were received. Owing to the fact that all European countries are well equipped with electricity, the electric drill is destined to rival the air drill in time, and opens up a field which heretofore could not be solicited. The profits earned through the extension of the foreign business will accrue to the benefit of the Chicago company. The English courts, on May 17, rendered the final adjudication of the patent litigation instituted by the English company, which decision sustained all of the company's claims, fifty-two in number, covering pneumatic hammers, thus leaving the English company in a particularly strong position with reference to its patents. Its plant, located at Fraserburgh, Scotland, is now in full operation. The American business, according to President Duntley, shows a very satisfactory increase in volume, and all factories, both American and foreign, are operating overtime. The month of May was the largest month in the history of the company.

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TRADE PUBLICATIONS.

A 34-H. P., four-cylinder marine motor is described and illustrated in a folder distributed by the Trebbert Auto and Marine Motor Company, Rochester, N. Y.

Centrifugal pumping machinery is the subject of Catalogue No. 11, issued by the Morris Machine Works, Baldwinsville, N. Y. The introduction to this catalogue states that the company has built centrifugal pumps for thirty-six years, and during that time has turned out over 23,000 of all sizes and types.

A free copy of a 52-page catalogue will be sent to any reader of MARINE ENGINEERING who will write to the Schaffer & Budenberg Manufacturing Company, corner of Leo and Bedford places, Brooklyn, N. Y. The pages are 9 by 12 inches in size and are filled with illustrations of a great variety of boiler and steam-engine appliances, making the catalogue one of great interest to any man who has to do with boilers or steam engines. The many specialties illustrated include gauges of all kinds, testing instruments, thermometers, water columns, gauge cocks, valves in great variety, whistles, injectors and ejectors, steam traps, indicators, etc.

"Manila Rope Transmission and Hoisting, a brief treatise for engineers on ropes used for the transmission of power, together with formulæ, tables, and data," by C. W. Hunt, is published by the C. W. Hunt Company, West New Brighton, N. Y. This book is profusely illustrated and describes the manufacture of rope from the original fiber up to the finished product, including the description of rope manufacture and transmission as practiced in past ages. Numerous diagrams are also given showing the horse-power of Manila rope at various speeds, diagrams of various rope-driving devices, illustrations and descriptions telling how to splice a transmission rope, and much other useful information. A copy of this pamphlet will be sent free to those mentioning MARINE ENGINEERING.

The Wiet-Goethe caliper combination gauge is described and illustrated in a folder issued by Howard S. Moss, 34 Clark street, Chicago, Ill. The folder states: "Did it ever happen to you when called upon to perform some mechanical work to be confronted by almost insurmountable difficulties because you did not have handy the right kind of tool to take measurements? We now present to the trade a tool which will enable you to carry in your vest pocket all in one instrument an outside caliper, an inside caliper, a divider, a straight edge, an angle gauge, a depth gauge, a try square, a center square, an angle protractor, a center gauge, and many combinations too numerous to mention. This tool is made of superior steel carefully tested as to its accuracy." For a limited time, in order to introduce this gauge, Mr. Moss will send it postpaid to any address for $2.

"Boiler Room Economy" is the title of a little book issued by the William B. Pierce Company, 321 Washington street, Buffalo, N. Y. The book tells all about boiler scale, how it is formed, and advertises the Dean boiler-tube cleaner as the best way to remove scale. The Dean boiler-tube cleaner has been made for several years and a sale already secured exceeding 5,000 cleaners. In the list of users is noticeable the number of large concerns which use this cleaner, the Standard Oil Company using 40, the United States Steel Corporation over 100 in its various plants, the United States Leather Company over 50, etc. The William B. Pierce Company makes great claims for the Dean cleaner, and that any power user may see its own value in his own plant, it will loan a cleaner for trial in one boiler without obligation to purchase. "Boiler Room Economy" tells all about this trial offer and the Pierce Company will be glad to send it to anyone upon application, as well as to loan a Dean cleaner for trial in competition with any device used for the prevention or removal of scale. Ocean-going steamships have been badly bothered by scale at different times, and many have purchased the Dean cleaner. A recent inquiry from the chief engineer of the Japanese navy, from the advertising of the Pierce Company in this paper, shows the wide circulation of MARINE ENGINEERING as well as the foresight of the Japanese in keeping in touch with all that is best in mechanical device in this country.

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Louvet two-cycle gasoline motors are the subject of a folder issued by Louvet & Son, 248 Park Place, Woodhaven, N. Y.

The "Wizard" marine gas engine is described and illustrated in a folder distributed by John V. Rice, Jr., & Company, Bordentown, N. J.

"Little Giant" sparking batteries and automobile speed recorders are the subject of an illustrated folder issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill.

Atlas water tubes and Atlas medium-speed engines are described and illustrated in catalogues issued by the Atlas Engine Works, Indianapolis, Ind.

Air and gas compressors.—The Laidlaw-Dunn-Gordan Company, 114 Liberty street, New York city, is distributing a 175-page book describing and illustrating steam, electric, gas, and power-driven compressors.

Watertown automatic engines are described and illustrated in a catalogue issued by the Watertown Steam Engine Company, Watertown, N. Y.

Gates valves for steam and water, bent pipe work, tools and supplies of all kinds for steam, water and gas users are described in circulars distributed by the Walworth Manufacturing Company, 132 Federal street, Boston, Mass.

Pressure and vacuum gauges, ammonia gauges, pop safety valves, blow off valves, globe and angle valves, and other engineering specialties are illustrated and described in a folder issued by the Crosby Steam Gauge and Valve Company, 78 John street, New York city.

The "Valve World," Vol. I., No. 5, published by Crane Company, Chicago, Ill., manufacturer of valves and other steam specialties, contains articles on "Self-Packing Valves," "The United States Steam Dredge *San Pedro*," "Importations of Scotch Pig Iron," "Making Large Wrenches in Emergencies," "Trade News," and other articles of interest to engineers.

"Absolute protection is assured against boiler explosions from excessive pressure by the use of the American special pop safety valve," says the American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass., in an illustrated folder it is distributing.

Marine gasoline engines and launches.—The Lamb Boat and Engine Company, Clinton, Ia., is distributing a number of folders, each illustrating and describing a boat and engine built by this company. These illustrations give a very clear idea of the class of work done by this company, and it will certainly pay intending purchasers of gasoline engines or launches to write for the company's literature.

The Hubbard gas engine is described in a 32-page illustrated catalogue issued by the Hubbard Motor Company, Middletown, Conn. Among the advantages claimed for the Hubbard motor are accessibility, simplicity, reliability, sensitiveness, and cleanliness. The catalogue states that it is the company's aim to make an engine of the most perfect type and still permit the claim of simplicity.

Metropolitan injectors are described in a 50-page illustrated catalogue issued by the Hayden & Derby Manufacturing Company, 85 Liberty street, New York city. The catalogue states: "This is an era of specialists, and we are specialists in injectors, ejectors, and jet apparatus. Our entire energy is devoted to the manufacture of Metropolitan injectors, H-D ejectors, water heaters, and jet apparatus fittings."

Northern electric emery grinders.—The Northern Electrical Manufacturing Company, Madison, Wis., has issued Bulletin No. 48, describing the company's electric grinder and buffer equipments. The Northern grinders are of special design and construction, including heavy crucible tool-steel armature shafts, liberal bearings, and dust-proof covers. They are equipped with speed-regulating devices so that the speed of the grinding and buffing wheels may be varied to compensate for the varrying diameters of the wheel. A free copy of this bulletin will be forwarded to all mentioning Marine Engineering.

The Sargeant steam meter, manufactured by the Sargeant Steam Meter Company, First National Bank Building, Chicago, Ill., is described and illustrated in a catalogue this company is distributing. The catalogue states that the device is an instrument for indicating the pounds of steam flowing through it irrespective of the pressure, that it shows at a glance the quantity of steam used by an engine, steam pump, heating system, or dry room. It is designed to be used for testing engines where surface condensers are unavailable, for testing the capacity of boilers, and for measuring the amount of steam used in each department of industrial plants.

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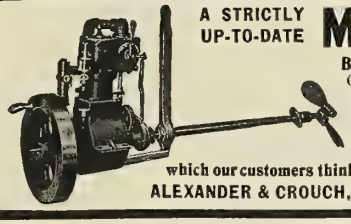

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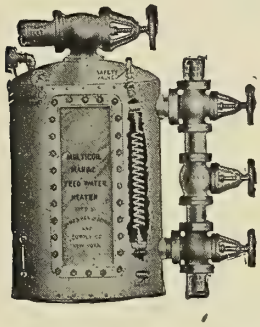

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BUSINESS NOTES.

Smooth-On elastic cement is the latest product of the Smooth-On Manufacturing Company, Jersey City, N. J. This is an iron elastic cement prepared in paste form ready for use. Its advantages are said to be that it is metallic, and may also be applied to hot iron, the heat causing it to metallize instantly, making it valuable for stopping leaks. The Smooth-On Elastic Cement Instruction Book will be sent free of charge to anyone mentioning this magazine.

"Long Arm" system power doors in London.—Among the few American inventions which are displayed at the naval, shipping, and fisheries exhibition at Earl's Court, London, England, this summer, is a full-size working exhibit of the "Long Arm" system of electrically-operated watertight power doors made by the "Long Arm" System Company, Cleveland, O. This exhibition is said to have attracted much attention from naval experts who have visited the display. This system, from a central station located at a convenient point on the bridge of the ship, closes the doors and hatches of the vessel in time of emergency, providing for the local safety of men involved by a liberty action attached to each door. The device has now been installed on some thirty American men-of-war, and the admiralty departments of numerous foreign governments are interesting themselves in the system with the idea of placing it on their own ships. In addition to the exhibit at Earl's Court, there is another full-size working exhibit on display at 39 Victoria street, London, England.

A popular galley range.—The popularity of the "Webbperfection" galley range, which not only roasts, cooks, and bakes, but supplies hot water, and at the same time permits the entire top of the stove to be used for cooking, is attested by the many orders received by Elisha Webb & Son, the manufacturers, and it is interesting to note the variety of vessels which they have lately equipped, among which have been the Standard Oil Company's barge *92*; steamship *Capt. A. F. Lucas*; schooner yacht *Elmina*; Peary Arctic Club's steamer *Roosevelt*; and the Sewall ship *Erskine M. Phelps*. In the case of the schooner yacht *Elmina*, a racing craft designed by Messrs. Cary, Smith & Ferris, the advantages of the hot- and cold-water system for bath, lavatory, and culinary purposes is obvious. There is no other agency on board for supplying hot water, and at the same time the yacht possesses a galley range which has an unobstructed top for cooking. This feature materially increases the capacity of the apparatus and adds to its efficiency. In the case of the Peary ship, Elisha Webb & Son not only supplied the galley range, but the entire plumbing system, consisting of porcelain tubs, lavatories, etc. The fresh water in this ship for ten months in the year is obtained by melting ice in a steel tank located immediately behind the range, and the cold-water supply for the various baths and lavatories is piped up by gravity system from the tank in question, the kitchen pump supplying the circulating boiler, which in turn supplies hot water by gravity to the various outlets. Arrangements are also made by which the gravity system can be dispensed with, and the baths and lavatories are supplied with hot and cold water by pressure system, operated by small steam pump. Elisha Webb & Son report the receipt of an order for a similar apparatus for the schooner yacht *Shepherdess*, building at Essex, Mass., for Mr. S. F. Houston, Philadelphia, from designs by B. B. Crowninshield, Boston, Mass. Mr. Houston will enjoy the advantage of hot and cold plunges and shower baths, which formerly were considered an impossibility on sailing yachts.

1842 Walworth

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128 Federal Street, **Walworth Man'f'g Co.,** Boston, Mass.

1905 Walworth

"Gladiator" high-pressure ring-packing, says the New Jersey Asbestos Company, Camden, N. J., is now being used by hundreds of engineers who never before could afford the luxury and convenience of packing in this form. This "Gladiator" packing is molded in steel dies under hydraulic pressure. The rings are very durable, and, being made of asbestos, will not burn or char, and, being molded to shape, they are accurate in size, clasping the rod snugly all around, thus often saving burned fingers and other troubles. The New Jersey Asbestos Company also makes many other asbestos specialties, such as asbesto-metallic sheeting, asbesto-metallic tape, asbestos mill-board, asbesto-metallic gaskets, asbesto-magnesia sectional steam-pipe covering, etc. Catalogue sent free upon request.

A new metallic packing.—The Garlock Packing Company, Palmyra, N. Y., has for two or three years investigated the metallic packing business of the country with the idea of going into the business itself. As a result the company has made an arrangement with the Pitt Manufacturing Company by which the Garlock Packing Company will operate the former company's plant at Elwood City, Pa. Mr. L. H. Martell, who has had fifteen years' experience in the manufacture of metallic packing, will remain as manager of the factory. By the addition of this plant the Garlock Packing Company is prepared to supply both fibrous and metallic packing suited for all engineering conditions.

Scaling condenser pipes with pneumatic hammers.—The Chicago Pneumatic Tool Company, Chicago, Ill., states that an important part of ice and refrigerating plants are the condensers, they being the medium through which the heat, absorbed from the water being frozen, or from the produce in storage, is finally disposed of. In the construction of ice and refrigerating plants great care is given to the condenser's design, to secure the best results in efficiency. Many times a plant is carefully designed, and highly economical results are obtained during the first few weeks of its operation, but slowly the cost of production increases until its profits are decreased to an alarming degree. Investigation usually shows that the management of the mechanical department is at fault, and that the machinery and devices about the plant are not receiving proper attention. Through neglect they become inoperative, thereby cutting down the output or increasing the cost of production. Water is always a questionable factor in a plant of this kind, and frequently is so scarce that plants cannot run to capacity or must be shut down a part of the time. Numerous devices are employed to overcome the water problem, many of which have great merit; yet frequently the condition of the condensers is not taken into consideration. They are up above somewhere and water runs over them. Many times all the water that can be pumped is sent over them, or through them, as the case may be. But still the compression gauge stands well up in the two hundreds, the ice in the moulds refuses to close, and the storage-room thermometers climb higher and higher. The cause of this condition is a simple one. The water used is impregnated with mud, alkali, magnesia, or some other substance, which has been daily deposited on the pipes of the atmospheric, or in the pipes of the double pipe condenser, and baked there by the heat of the compressed ammonia gas or steam within them until the efficiency of the condenser is reduced from 10 percent to 25 percent. It has been the custom heretofore to take hammers and pound the scale off the pipes when they are found to be scaley. This has been a dangerous and expensive method, for the pounders seldom struck the same blow; that is, some would not pound hard enough, while others would strike with force enough to crack the pipes and fittings, causing expensive repairs, loss of ammonia, and time. A discovery in cleaning and scaling condensers has been made recently; a pneumatic hammer can be used to advantage, and is a time and labor-saving device. A pneumatic hammer strikes rapid, uniform, light blows, which removes the scale instantly without danger of cracking pipes, fittings, or springing joints, and requires but one-fourth of the time to clean a condenser that the old hammering method does. This means that the condensers have to be closed down only a short time, and almost a normal output may be maintained during the condenser-cleaning operation. The air pump now employed in all modern plants is usually large enough to supply air for such a hammer.

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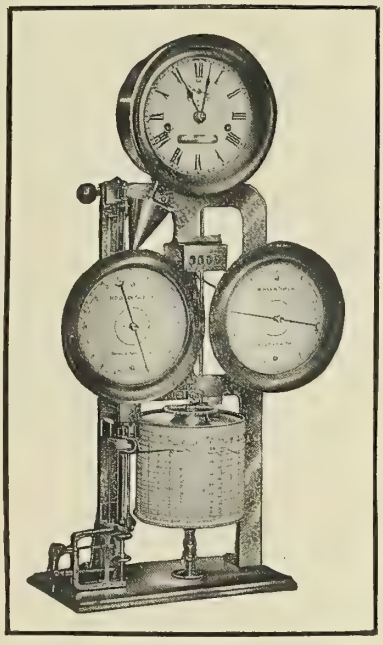

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Mr. W. A. Stadelman, eastern agent of the Wellman-Seaver-Morgan Company, Cleveland, O., who has been in charge of the eastern office at No. 42 Broadway, New York city, has been appointed general sales agent of the same company with headquarters at Cleveland, O. Mr. Fred. Stadelman has been appointed assistant manager of the New York office. Mr. Harry V. Croll, M.E., for the past eight years with the E. P. Allis Company, and their successors, Allis-Chalmers Company, Chicago, Ill., has resigned and accepted a position with the Wellman-Seaver-Morgan Company.

Cumming's portable rivet forges are manufactured by David Cumming, 783 West Kinzie street, Chicago, Ill. The chief advantages claimed for these forges are lightness, strength, portability, and strong blast. They may be easily taken apart, the heaviest piece weighing only 28 pounds, and carried into such places as the fire room of a steamship or the top of a stand pipe or bridges. They have no chains, leather belts, bellows, or anything breakable or affected by the weather. The blower and pipe are easily detached, and may be used on flange fires for heating metals to shapes and for ventilating.

A satisfactory boiler compound.—The Bird-Archer Company, 209 Washington street, New York city, has received the following letter from the chief engineer of the transport *Sumner:* "After using your compound for somewhat over a year in the ships of which I have been chief engineer, I wish to inform you that it is the best article of its kind that I have ever seen. Before using your compound I was opposed to all articles of that class, but the fine working of yours has convinced me that there is merit in a good boiler compound. I left Hong Kong on my ship the 1st of August, and did not have an opportunity to open my boilers for inspection until I arrived in this port, December 14. On opening same I found them to be absolutely free from scale, oil and grease, absolutely no trace of salt incrustation, and, in fact, in excellent condition. I cannot speak too highly on the subject of your boiler compound, and willingly have you refer any person to me, and I can assure you I will give your compound the name it deserves, and that is A1. I have just put in a requisition for more of your material, and, in fact, as long as I am steamshipping, I never want to be without it. Very truly yours, Robert S. Paul, chief engineer U. S. A. T. *Sumner.*"

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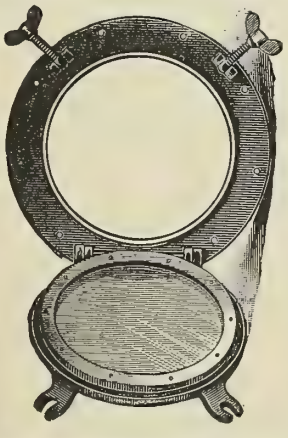

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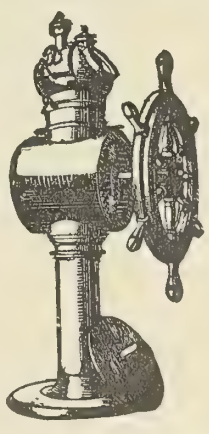

Trout propellers.—H. G. Trout, of the King Iron Works, 226 Ohio street, Buffalo, N. Y., reports that he is doing a rushing business in propeller wheels, many orders coming from old customers, showing that Trout wheels have given satisfaction. Among orders recently received is one from Mr. Lockwood, of South Norwalk, Conn., for his steamer *Lockwood*, the propeller being a duplicate of one he purchased two years ago. Mr. Lockwood reports, regarding a bronze wheel sent him some months since by the King Iron Works, that the wheel is satisfactory in every particular, and has greatly increased the speed of his boat.

Allen riveting machines.—John F. Allen, 370 Gerard avenue, New York city, who makes Allen portable pneumatic riveting machines, reports a good demand for these tools, with shipments during the month of June as follows: John Pirkl Iron Works, Brooklyn, N. Y.; Kalamazoo Foundry and Machine Company, Kalamazoo, Mich.; J. K. Petty & Company, Lebanon, Penn.; Cambria Steel Company, Johnstown, Penn.; Marava Construction Company, Chicago, Ill.; Dornfield, Kunert & Company, Watertown, Wis.; American Car and Foundry Company, Mephis, Tenn.; Standard Bridge Company, Red Oak, Ia.; Department of Marine and Fisheries, Sorel, Cal.; Hay Foundry and Machine Company, Newark, N. J.; Fenwick Frères & Company, Paris, France; Manning, Maxwell & Moore, New York city.

A patent controlled by the B. F. Sturtevant Company, Boston, Mass., has been issued for a special type of exhaust hood for grinding and polishing wheels. Its special feature consists of a receptacle to catch the particles of solid matter passing from the wheel, the suction being controlled so that it is not quite sufficient to draw them away, and these particles fall to the bottom and are there collected while the practically free air passes through a collector where the remainder of the dust is removed. The receptacle may be readily emptied when it becomes filled, and its use is planned to prevent excessive wear on the exhaust fan, piping, and collector. The hood is so designed with hinges and clips that the wheel may be readily removed or adjusted to fit the wheel as it wears to a small diameter. The outlet is connected to the exhaust fan and a shield, a swivel plate, and an extension slide may be adjusted so as to more fully enclose the wheel and prevent the discharge of particles into the room.

The Richardson Engineering Company, Hartford, Conn., reports sales of electric-lighting equipments for yachts as follows: A complete equipment to S. J. Matthews, of the Matthews Boat Company, for his 70-foot yacht. This equipment is to be one of the most complete that the company has turned out. It will include generator belted from the main engine, a fully-equipped switchboard, with all apparatus of full polished copper plate; a large enough set of storage batteries to run the lens mirror arc searchlight independent of the generator, the plant being so arranged that the current from the arc searchlight is turned from the generator while the engines are running at normal speed. When they are slowed down, running at half speed, the battery automatically picks up the searchlight, so that there is no break in the beam of the light. Also one of its standard 2-C equipments for the yacht *Onaway*, owned by Mr. C. T. Grantham, Hamilton, Ontario, Can. A steam set to W. G. Maxcy, Oshkosh, Wis. This steam set consists of a rotary engine direct connected to one of the company's standard dynamos, which is capable of furnishing twenty 16-candlepower lights, and occupies a floor space of about 14 by 24 inches. It includes lens mirror arc searchlight, switchboard, and entire installation material; the same size equipment for Lieutenant Hugh L. Willoughby, for his new 60-foot boat. The Richardson Engineering Company also reports a large number of sales of its smaller standard equipments, which are proving very popular, and states that its incandescent searchlight with a new form of reflector and incandescent bulb are giving wonderful results. This company also turns out compact direct-connected gasoline sets for plants of 30, 40, and 80 lights in single cylinder, and up to 300 lights in multiple cylinder, which are especially adapted to houseboats, sailing craft, automobile charging, and in any place where space is at a premium and lightness an advantage. The company reports having done twice as much work to date as it did during all last year.

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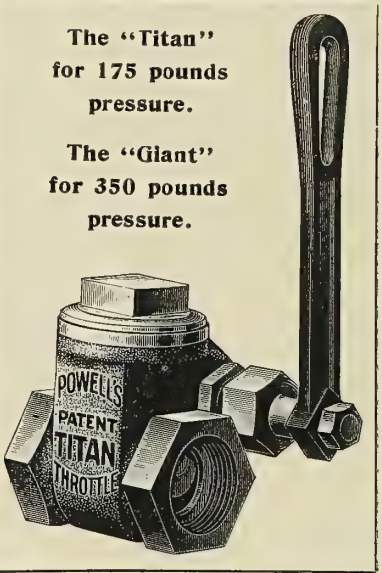

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The United States Metallic Packing Co.
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A brief history of Crane Company, Chicago, Ill.—In the spring of 1855 Mr. R. T. Crane came to Chicago and opened a brass foundry. Work on the shop was completed July 3. Being anxious to see how the furnace and sand would work, and having some patterns ready, Mr. Crane took off a heat the next day, notwithstanding it was the Fourth of July. The sand used was found on the premises, and the first castings were couplings used in connecting lightning rods. Business prospects looking good, Mr. Crane sent for his brother, Charles S. Crane, who came in the fall, and was connected with the business until 1871. Shortly after his arrival they decided to go into the making and finishing of brass goods. A foot lathe was purchased, and the manufacture of brass engine trimmings begun. A few months later a room with power was rented, and the following spring a small three-story frame building was erected and equipped for power with a 6-horsepower portable engine. The next year jobbing in wrought-iron pipe and fittings and steam-warming work was taken up. Little business was done in the three years previous to the breaking out of the war because of the unsettled conditions prevailing. After the beginning of hostilities the demands of the government for all sorts of material created a boom in business generally. Soon the brass plant had to be enlarged, and the manufacture of brass globe valves, check valves, steam and gas cocks begun. An iron foundry was started, and the building of machinery and the making of a few articles belonging to the steam-fitting line was undertaken. About the same time a small butt-weld pipe mill, the first mill west of Pittsburg, was built on ground where the Crane Company still has a pipe mill. In the same year (1864) the property where the present brass department is located, known as No. 10 North Jefferson street, was purchased, and the first malleable-iron foundry outside of the eastern states started. This foundry was on the second floor, and is said to be the first instance of a foundry being placed above the ground floor. The manufacture of both malleable- and cast-iron fittings was commenced. The fitting industry was then in its infancy in this country. Most of the fittings used were wrought-iron fittings imported from England. Not more than six or seven concerns were in the business in the United States, and their total output was small. About this time the three-way tapping machine was invented. Two, with some original improvements, were built by the Crane Company, and installed in their shops, one for tapping 3-4-inch and smaller, and the other for tapping 1 to 2 inches. The few fittings required above two inches were threaded in a lathe. In connection with the fitting business the company early took up the manufacture of dies and die plates. In 1865 the business was incorporated, and the name changed from R. T. Crane & Brother to the Northwestern Manufacturing Company. This name was retained until 1872, when the title Crane Brothers' Manufacturing Company was adopted, which was changed in 1890 to Crane Company. By 1870 the business had grown so that further extensions were necessary. The land west of the property at No. 10 North Jefferson street was purchased and a building erected thereon. Fortunately the company escaped the big fire of 1871, and the large increase that had recently been made in facilities enabled the company to take advantage of the heavy demand for goods created in the re-building of the city. In 1881 another pipe mill was erected on property purchased on West 12th place, where there were excellent railroad facilities. One lap-weld and two butt-weld furnaces were erected. Although the Crane Company was concentrating upon the manufacture of valves and fittings, the continued growth of the business demanded extensive additions in 1891, 1899, 1900, 1902, 1903, and this year a five-story modern office building has been erected. Not only has there been an immense increase in the floor space used for manufacturing purposes, but all departments have been equipped with the latest improved machinery, much of which has been designed and built by the company. A sketch of the Crane Company would not be complete without a description of the growth of its branch-house system, which, by ensuring large and steady sales, enabled the company to devote its resources and energies to a single line of manufacture with the consequent result of being able to use highly specialized automatic machinery. The first Crane Company branch was established in 1886 at Omaha. One year later branches were opened in Los Angeles and Kansas City. The success of these branches led to the determination to start others, and make branch houses a permanent and important feature of the business. The branch houses carry stocks enabling the customer to get goods promptly and be assured of receiving uniform articles. In 1890 the first eastern branch began business in Philadelphia. Other branches have been established in the following cities: San Francisco, 1891; Minneapolis, 1892; St. Paul, 1893; New York, 1894; Portland, Ore., 1894; Duluth, 1894; Sioux City, 1897; Oakland,

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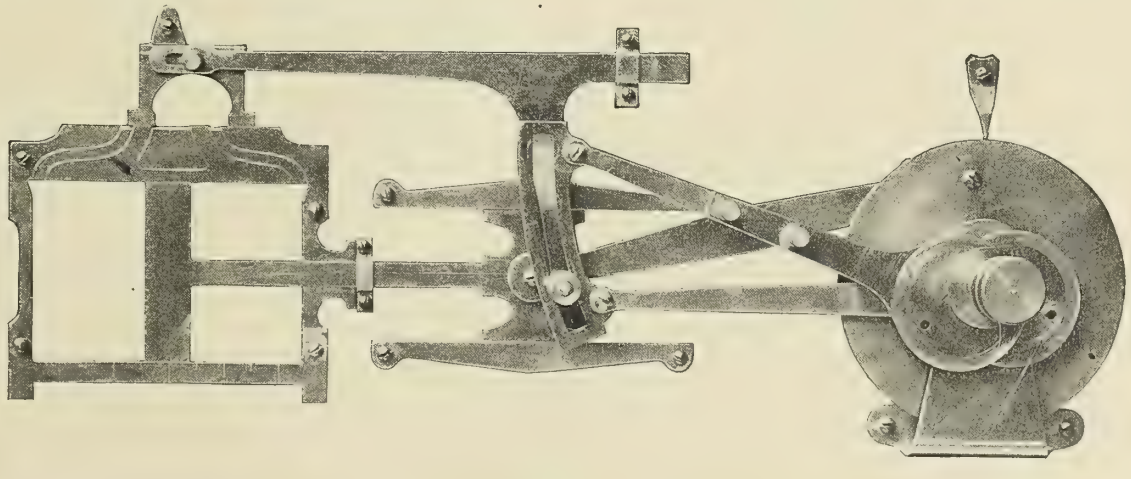

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Cal., 1898; Cincinnati, 1899; St. Louis, 1899; Salt Lake City, 1902; Seattle, 1902; Watertown, S. D., 1903; Chanute, Kan., 1903; Independence, Kan., 1904; Spokane, 1904; Fargo, N. D., 1904; Baltimore, 1904; Memphis, 1904; Dallas, 1904; and Birmingham, 1905. All the branches except New York carry complete stocks of plumbing supplies. The Chicago sales department, conducted in connection with the general offices, does not handle plumbing material. While no special effort has been made to create a demand for Crane goods outside of the United States and their possessions, for the reason that the capacity of the company has been fully taxed in taking care of domestic demands, nevertheless they are sold in considerable quantities in Canada, Great Britain, Denmark, Mexico, South America, South Africa, Australia, Japan, China, and Russia, and in smaller quantities in all countries of the world. The company was awarded the only gold medal given at the Paris Exhibition, 1900, for exhibits of valves and fittings. Recently a European sales office and showroom has been opened at No. 95 Queen Victoria street, London, E. C.

AN EFFICIENT AUXILIARY ENGINE.—The B. F. Sturtevant Company, Hyde Park, Mass., manufacturer of fans, blowers, and marine and stationary engines, state that "the rigid specifications drawn by the United States navy department for auxiliary engines required in the equipment of vessels of recent construction, have done much to improve their general standard of efficiency. It is therefore unusual to find that even these exceptional requirements have been improved upon. Such, however, is true in the case of recent designs of vertical cross-compound engines built by us for direct connected generator driving. These engines have shown upon an economy test, a consumption of steam per horsepower four pounds less than that demanded by the specifications. This result is characteristic of a line of engines we are building to develop from 25 to 150 H. P."

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So many of our readers have asked us for duplicates of the data cards which are published each month in connection with editorial articles, that we are reprinting them for the convenience of those who wish them for filing.

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The service began with the cards which appeared in the June, 190-, issue.

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All correspondence, concerning either vacancies or situations wanted, is strictly confidential.

MEN SEEKING POSITIONS

We have applications registered for positions as follows, and the references of each applicant have been carefully investigated:

ASSISTANT OR SUPERINTENDING ENGINEER to shipping concern or factory seeks position; is 30 years old, married, and has had several years experience at sea as chief engineer. Application No. 100.

BOILER-MAKER FOREMAN seeks position. Is at present foreman of railroad shops and has charge of nearly one hundred men; has had twelve years' experience as foreman; posted in the latest boiler practice; has best references as to ability and character; is 38 years old. Application No. 73.

BOILER-SHOP FOREMAN. Age 35; single; many years' experience in Navy Yard and leading shipyards. Application No. 59.

BOILER-SHOP FOREMAN. Age 37; single; 16 years' experience in boiler-shop work. Application No. 47.

CHIEF OR ASSISTANT CHIEF DRAFTSMAN—ENGINE. Age 33; married; has had sea experience and thirteen years as leading and chief draftsman of private and government shipyards. Application No. 25.

CHIEF DRAFTSMAN OR SUPERINTENDING ENGINEER seeks position. Has had extensive experience in several of the best known shipyards, and can furnish the best of references. Application No. 81.

CHIEF DRAFTSMAN OR CHECKER seeks position; is 36 years old; married; was with the Carnegie Steel Company for about three years; later with the National Steel Company, and with the American Bridge Company. Application No. 79.

DESIGNER, EXPERIENCED, of dredges and other types of vessels, seeks position; is 28 years old; has had 10 years of experience in Great Britain and this country in leading shipyards. Application No. 82.

DESIGNER AND DRAFTSMAN. Has had many years' experience in launch and river boat work. Designed some of the fastest river boats in the country. Application No. 61.

DRAFTSMAN. Position in a drafting office desired by a young man just finishing his course in naval architecture. Application No. 108.

DRAFTSMAN seeks position; has had long experience in designing, including main and auxiliary engines for torpedo-boat destroyers for the British Admiralty, and some of the best suction dredges that have been built in Great Britain. Best of references in this country. Application No. 111.

DRAFTSMAN, ENGINE AND BOILER. Age 30; unmarried; has Danish marine license; technical school graduate. Application No. 57.

DRAFTSMAN—HULL. Age 20; single; experienced in architectural work, but prefers marine drafting. Application No. 51.

DRAFTSMAN—HULL, OR INSPECTOR. Age 37; married; had experience both in government yards and private yards. Application No. 30.

DRAFTSMAN—HULL. Age 22; single; born in Norway; studied Technical schools in Norway and Germany; experience as draftsman, also as shipfitter. Application No. 31.

DRAFTSMAN—HULL AND ENGINE. Age 26; single; graduated Webb Academy; has had four years' experience in navy yard work; desires connection with private shipyard. Application No. 41.

DRAFTSMAN—ENGINE, STEAM OR GAS. Forty-three years old; single; born in Germany; has had extensive experience in designing and drafting; has had sea experience. Application No. 32.

DRAFTSMAN, ESTIMATING, seeks position; age 30; single; graduate of the Virginia Polytechnic Institute; has had several years' experience in well-known shipyards. Application No. 110.

DRAFTSMAN—MARINE. Age 34; married; accustomed to intricate drafting work. Application No. 50.

DRAFTSMAN, MECHANICAL, capable of designing and computing, age 31, seeks position in connection with hull and engine work. Has had experience in government work; also in well-known shipyard. Application No. 114.

DREDGE DESIGNER seeks position; has had 10 years' experience in designing and building dredges of all kinds. Application No. 99.

DREDGE OR SHIPBUILDER who has had 20 years of experience in calculating and designing in connection with dredges and other vessels seeks position. Application No. 83.

GANG FOREMAN IN ERECTING SHOP OR FITTING UP ENGINES IN SHIPS. Age 37; married; has been with present employers 15 years. Application No. 26.

GAS ENGINE DRAFTSMAN seeks position; is 27 years old; married; technical-school graduate; has had several years' sea experience, as well as a number of years of special work in connection with gas engines; has had experience in building these engines up to 1,500 horsepower; thoroughly posted on all office detail and laying out work. Application No. 97.

GAS ENGINE OPERATOR. Age 28; single; born in Germany; 7 years' experience; understands naphtha engines of Gas Engine and Power Co. thoroughly. Application No. 48.

HULL SUPERINTENDENT. Age 42; married; born and learned trade in Scotland, studied at Glasgow School of Naval Architecture, experienced as foreman; surveyor and hull superintendent. Application No. 27.

LAUNCH AND YACHT SUPERINTENDENT AND DESIGNER. Age 34; married; has had about fifteen years' experience in some of the best known launch and yacht building establishments in the country. Application No. 62.

LEADING DRAFTSMAN OR SUPERINTENDING ENGINEERING FOR STEAMSHIP LINE. Age 34; married; studied Massachusetts Institute of Technology; 11 years' experience in drafting and other marine work. Application No. 53.

LOFTSMAN. Age 33; single; has had eight years' experience as loftsman, foreman, and draftsman. Application No. 44.

MARINE MAN, EXPERIENCED, with excellent recommendations seeks outside position in shipyard or to represent some manufacturing concern or launch builder; is 39 years old and single. Application No. 78.

MASTER OF STEAM YACHT. Age 37; married; born in Norway; has license as master and pilot on ocean steamer; has commanded several well-known yachts. Application No. 40.

MASTER OF SHIP OR YACHT. Age 40; 7 years' experience; has first class master's license for all ocean and coastwise steamers and pilot for most harbors on the coast. Application No. 39.

MASTER OR PIER SUPERINTENDENT. Age 38; has spent whole life at sea and has British Extra and American master's certificate; pilot New York and San Francisco; experience in handling men and cargoes. Application No. 35.

MASTER AND PILOT. Age 44; single; 11 years' experience; has license for 500 tons as master and pilot ocean and inland for New York, New Haven, and New London districts. Application No. 20.

MASTER OR PILOT seeks position, preferably on a houseboat. Has had 43 years' sea experience in all parts of the world. Is well acquainted with the inside route from New York to Florida, and with all the waters of Florida and adjacent lines. Best of references. Application No. 115.

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The Roe Stephens Manufacturing Company, Detroit, Mich., has bought the plant of the Michigan Brass and Iron Works, Detroit.

Racine boats in Mexico.—The Tampico Rowing Club, Tampico, Mexico, has ordered two 6-oar rowboats from the Racine Boat Manufacturing Company, Muskegon, Mich.

The Mosher Water Tube Boiler Company, 1 Broadway, New York city, has been incorporated with a capital stock of $1,000,000. The incorporators are Charles D. Mosher, 1 Broadway, New York city; Gardiner C. Sims, Providence, R. I., and Arthur S. Beves, Glenridge, N. J.

Dimension sheets, bolts and bars, sheathing, slating, and boat nails, condenser and supporting plates, piston and pumping rods, etc., are made by the Taunton-New Bedford Copper Company, New Bedford, Mass. The company claims that its product is unequaled for high-class marine work.

Slow-speed motor drive.—Bulletin No. 44, issued by the Northern Electrical Manufacturing Company, Madison, Wis., illustrates applications of geared motors in industrial plants. The motors are compact and self-contained, accomplishing slow speed without the necessity of employing designs for slow armature speed. This arrangement is said to secure a motor of low cost for operating slow-speed machines.

Asbestos packing for superheated steam.—The H. W. Johns-Manville Company, 100 William street, New York city, states regarding its asbestos "Vulcabeston" packing, that it is furnished in sheet, moulded, and special ring forms for joint; moulded concave and convex rings for movable rods and valve stems; twisted and braided rope form for stop valves; and special extra-graphite forms for work on steam turbines. The company states that "Vulcabeston" is used in nearly every large power plant in the United States where superheated steam has been installed. A pamphlet describing "Vulcabeston" will be sent upon application.

Albany grease spindle cup.—This cup, which is made by Adam Cook's Sons, 313 West street, New York city, may be readily attached to the bearing by any machine. A hole through the cap and brass is bored, of sufficient size to allow the outside tube of the cup to enter the inside spindle coming into contact with the shaft. The outside tube, being shorter, will clear the shaft by from one-fourth to three-eighths of an inch. The inside spindle is then removed, the cup filled and the spindle replaced, when the apparatus is ready for use. It is claimed that the most obstinate bearing will yield when Albany grease is used, whether on slow or fast running machinery.

Anti-fouling paint.—The Hertzog Paint and Varnish Company, 627 Cherry street, Philadelphia, Pa., has received the following letter from Captain N. B. Watson, of the yacht *Constellation,* Beverly, Mass.: "May 24, I received a half gallon of your red anti-fouling paint as a sample with my order of cement paint, and applied it to the rudder of yacht *Constellation.* On Sept. 29 we hauled out and after being on all season, I found your paint clean and smooth. The paint looked good and fresh, not having cracked or peeled off. In my experience, what little I have used of your red paint has given the best satisfaction of any I have ever used. There is nothing I have ever used as good for a steel vessel, as Hertzog's cement paint to prevent rusting. I have used it on the yacht *Constellation* for the last twelve years."

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TRADE PUBLICATIONS.

Air Power, published monthly by the Rand Drill Company, 11 Broadway, New York city, always contains much useful information for the user of pneumatic tools and compressed air. We understand that all applicants mentioning MARINE ENGINEERING will be put on the free mailing list.

Gas producers are illustrated and described in a 50-page catalogue issued by the Morgan Construction Company, Worcester, Mass. The catalogue states: "The Morgan continuous gas producer has been developed to secure the greatest possible efficiency and most perfect uniformity and continuity in the manufacture of producer gas." Any person interested in the subject of producer gas should send for this publication, a free copy of which will be forwarded upon request.

"An ounce of prevention is worth a pound of cure," says the Reliance Gauge Column Company, Cleveland, O., in a leaflet describing its safety water columns. The advantages claimed for this company's water columns "are not found in the mere fact that they whistle in any emergency and thus obviate disaster. They cause the fireman to watch the water carefully, in order to keep the whistle quiet and thus make a good record. The results are: Steady water, steady steam pressure, dry steam, steady power, less expansion and contraction, longer life for the boilers, less repairs, less stoppage, less fuel wasted, no leaky tubes, no burned crown sheets, no boiler explosions."

Steam turbines are described and illustrated in bulletin No. 10 of the De Laval Steam Turbine Company, Trenton, N. J. The bulletin states: "The works of the De Laval Steam Turbine Company were built in 1901 and occupy a unique position among the machine shops of the country in that they were the first shops in America to be devoted exclusively to the manufacture of steam turbines. The buildings embody the most modern ideas, and in design follow out certain desirable features of construction of the parent shops at Stockholm, Sweden, where the original De Laval Company is located. Besides the American and Swedish companies there are also the French De Laval Company (Societe de Laval), located at Paris, and the English Company (Greenwood & Batley), at Leeds, England, so that the American works are one of a system of factories engaged in the manufacture of steam turbines and turbine machinery, under the De Laval patents, in different parts of the world."

"A Condensed Talk about Condensers," is the subject of an illustrated 32-page pamphlet issued by Williamson Bros. Company, Aramingo avenue and Cumberland street, Philadelphia, Pa. The introduction states: "The value of condensing is so well understood that we deem it superfluous to enter into a discussion of this phase of the subject. Those who may wish to do so will find on the last pages of this booklet a series of tables which will prove of material assistance. The introduction and demonstrated commercial success of the cooling tower in places where it is impossible to obtain an ample supply of cooling water for condensing purposes, has affirmatively answered the question every manager of a plant asks, i.e., can we run condensing? This leads us to consider the degree of vacuum to be obtained on the engine or turbine, and the most efficient apparatus for maintaining it. As a general rule, a vacuum from one to two pounds of absolute is the most desirable for reciprocating engines, while for steam turbines, it will usually pay to get the highest vacuum obtainable. Whether the vacuum shall be procured with a surface or jet condenser, whether the apparatus thermo-dynamically, the least expensive to operate, or one having the lowest first cost and maintenance charges shall be installed, are problems that can best be solved by each plant. To this end, we solicit your correspondence." Surface condensers, jet condensers, ejector condensers, barometric tube condensers, turbine condensers, cooling towers, evaporators, and feed water heaters, are described and illustrated in the pamphlet. Williamson Bros. Company also makes steam steering engines, electric steering equipment, tiller steering gears, telemotors, electric hoists, hoisting winches, etc. A free copy of this booklet will be forwarded upon application to the company.

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When writing to advertisers please refer to MARINE ENGINEERING.

The Marine Launch Igniting and Lighting Company, Watkins, N. Y., is distributing literature describing its automatic switches, ammeters, searchlights, etc.

"A Short Story of Nathan Reed," is the title of the latest brief biography issued by Wyman & Gordon, Worcester, Mass., manufacturers of drop forgings.

Compression yoke riveters are described in illustrated catalogue No. 3, issued by the Hanna Engineering Works, 820 Elston avenue, Chicago, Ill. These riveters are made especially for shipbuilding, boiler shop and other structural iron and steel construction.

"An Electrified Railway Shop, Described by Its Mechanical Engineer," is the title of bulletin No. 58, issued by the Crocker-Wheeler Company, Ampere, N. J., manufacturers and electrical engineers.

Exhaust fans are the subject of illustrated catalogue No. 180, issued by the American Blower Company, Detroit, Mich. This company has recently received a large order from the National Tube Company, Pittsburg, Pa., for the complete heating apparatus for the latter company's five new butt weld mills at Lorain, O.

The July and August stock list, issued by the Scully Steel and Iron Company, Chicago, Ill., will be sent free upon application. This stock list comprises 146 pages, several hundred illustrations, and lists almost everything a boiler maker or iron worker might want from angles to "Z" bars.

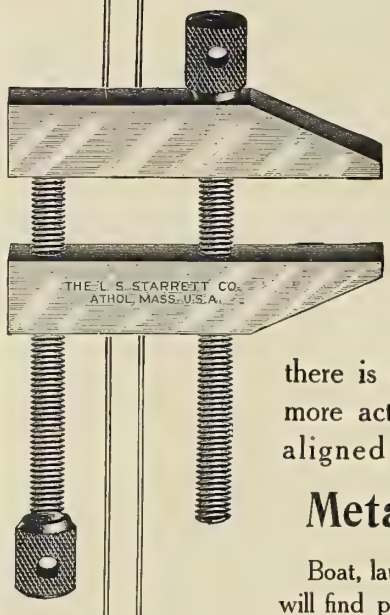
"Northern" spherical machines are illustrated and described in bulletin No. 50, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The bulletin shows standard dynamos and motors and the modifications of these frames, illustrating Northern machines and their applications in machine shops, industrial plants, etc. A free copy of this bulletin will be forwarded to readers of MARINE ENGINEERING, upon request.

"The Picture Book," is the title of an illustrated booklet issued by the Kingsford Foundry and Machine Works, Oswego, N. Y., describing the company's many styles and sizes of pumps. Among those illustrated are turbine pumps of various kinds, side-section pumps of several types, a large number of motor driven pumps, hydraulic dredging pumps, suction pumps of all kinds, and, in fact, pumps for almost every purpose. The company is prepared to furnish turbine pumps of the horizontal or vertical types, for any head or any quantity and guarantee results.

"A. B. C." electric disk fans are described and illustrated in bulletin 66, issued by the American Blower Company, Detroit, Mich. This bulletin states: "The American Blower Company's disk fan and the Westinghouse motor are recognized as pre-eminently the most efficient in their respective fields, and their combination can only result in an outfit of undoubted superiority. Before shipment the motor is run under load and tested for temperature, commutation and regulation, each part having been previously submitted to a thorough system of tests and inspection while under construction."

Rotary planing machines are described in illustrated catalogue No. 41, issued by the Newton Machine Tool Works, Philadelphia, Pa. These machines are made of one general design, having cutter heads from 26 inches to 100 inches in diameter over tools, and may be either plain, portable, on circular sub-base, or mounted on long bed, to face off both ends of work simultaneously. "The cutter head is driven through gearing by a pinion meshing into an internal gear on the cutterhead. Saddle movement is by means of a spiral pinion and rack, having four changes of geared feed and power quick traverse in either direction. Our method of feeding carriage, in addition to giving a smooth and even motion, does away with the long feed screw, which is frequently a source of trouble owing to its sagging and binding."

The Tabor indicator, manufactured by the Ashcroft Manufacturing Company, 85 Liberty street, New York city, is described and illustrated in a 32-page catalogue the company is distributing. Special attention is called to the parallel movement and pressure spring parts of the Tabor indicator: "The parallel movement and pressure spring are parts of an indicator to which all makers have devoted special attention. The parallel movement of the Tabor indicators is really the only one in which the pencil point will travel in an exact parallel to the movement of the indicator piston through any required distance. With the Tabor indicator parallel movement it is not necessary to limit the height of the drum and card to prevent a curve at the extremities of the lines produced by the so-called parallel movements very often employed. Another strong point of the Tabor movement is the exact maintenance of the ratio of the movement of the pencil point to the movement of the piston during every part of the stroke."



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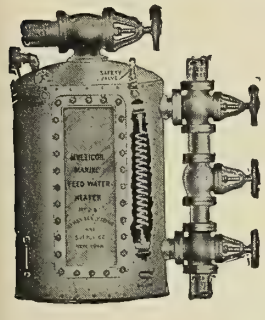

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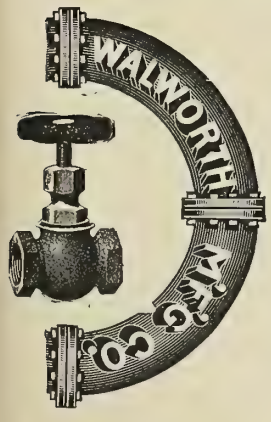
The annual report of Webb's Academy and Home for Shipbuilders, Fordham Heights, New York, has just been issued. The academy was founded in 1889 by William Henry Webb, for the purpose of furnishing any young man, a citizen of the United States, of good character, who may upon examination prove competent, a gratuitous education in the art of ship and marine engine building, both theoretical and practical, together with board, lodging and necessary implements and materials while obtaining such education, and also to afford free relief and support to aged, indigent or unfortunate men who have been engaged in building vessels, or marine engines, in any section of the United States, together with the wives or widows of such persons.

The joiners' and shipbuilders' edition of the catalogue issued by the Berlin Machine Works, Beloit, Wis., is a complete and beautifully illustrated volume of 90 pages, which will be sent free upon application to those mentioning MARINE ENGINEERING. The company's aim in preparing this catalogue has been to give information which will meet the special requirements of shipbuilders and joiners who are in the market for woodworking tools. The catalogue states: "We are building tools adapted to the needs of the present. Many of them differ radically in construction from the woodworking machines of the past, and all changes have been made after a careful study of existing conditions."

Graphite for gas engines.—The August issue of *Graphite*, published by the Joseph Dixon Crucible Company, Jersey City, N. J., contains the following letter from Albert Albaugh, Meadville, Pa., addressed to the Dixon Company: "I wish to thank you for your booklets, which contained the information I desired, and which also gave me some pointers where to use Dixon's flake graphite to advantage in other places. Last week we tested a 250-horsepower four-cylinder gas engine and found Dixon's graphite to be just the thing on the testing floor. We used it in the cylinders and on all bearings. It gave the best of satisfaction, leaving the cylinders with a perfect gloss after the test." Any of the Dixon publications regarding graphite and its uses will be sent free upon request.

Reducing valves are described and illustrated in a 58-page catalogue issued by the Mason Regulator Company, Boston, Mass. The catalogue states: "The splendid reputation of the Mason reducing valves is not the result of an accident, but the outcome of twenty-two years of persistent effort backed by large capital and superior manufacturing facilities. They hold the first place to-day because their merits entitle them to that position. No other valves work so accurately, wear so long, nor accomplish their purpose so fully as the Mason. Once installed they are always demanded thereafter, and thousands of manufacturers absolutely depend on these valves working in many critical locations, and find them satisfactory. The Mason reducing valves were designed by an expert engineer of long and varied experience and having a full and complete knowledge of the requirements of a satisfactory valve. The aim of the designer to produce a simple practical self-contained reducing valve of the best material and workmanship has been fully realized. Neither time nor money has been spared to make them the most perfect valves in the world, and thousands of users have attested in written testimonials our success. We shall be pleased to hear from persons who have some difficult or peculiar reducing problems to solve, as we can often suggest an easy, reliable, and economical solution. The long and varied experience of our engineers is at the service of all of our patrons. Always write us freely, and be assured we shall answer promptly and fully."

Mr. Engineer



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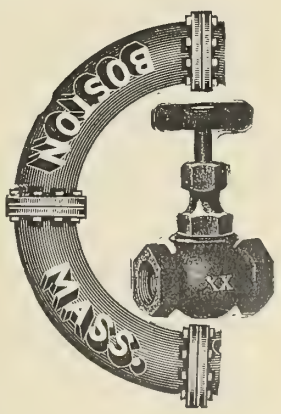

WALWORTH MFG. CO., - BOSTON

BUSINESS NOTES.

C. Lee Cook Manufacturing Company, Louisville, Ky., has succeeded to the business of Mr. C. Lee Cook, and will continue to manufacture metallic, rod and Corliss valve steam packing.

Crane Company, Chicago, Ill., has removed its general offices and sales departments to its new office building at 519 South Canal street, Chicago. The company was located at No. 10 North Jefferson street continuously since 1864, and a branch of its city sales department will be continued at the latter address. In the new building the company has five floors of offices, giving it ample space for the proper transaction of business.

A feature of the boiler plant of the Garlock-Frazee Laundry Company, Cleveland, O., is the induced mechanical draft apparatus applied to four Babcock and Wilcox boilers, aggregating about 1,000 rated horsepower. This apparatus, furnished by the B. F. Sturtevant Company, Boston, Mass., consists of an 8-foot blast wheel, driven by a direct-connected 7 by 10½ horizontal engine; the steam pressure being maintained practically constant by means of a Foster regulating valve. The boilers are equipped with chain grates and the apparatus is designed to have draft sufficient to burn the general run of Pittsburg slack.

A new incorporation.—The Mianus Motor Works, Mianus, Connecticut, has been incorporated with a paid up capital stock of $100,000. On January 1, 1905, they purchased the business of the Brooklyn Railway Supply Company, Mianus, Conn., and have taken over all its assets and liabilities. The Mianus Motor Works propose to conduct the business formerly carried on by the Brooklyn Railway Supply Company on a more extensive scale with increased capital. The officers of the company are as follows: President, George Gray; Vice-President, Frederick A. Hubbard; Secretary, A. P. Avery; Treasurer, Charles B. Allyn.

Yacht sail makers.—Wilson & Silsby, Rowe's Wharf, Boston, Mass., call attention to the fact that they make a specialty of sails for racing yachts. They have furnished sails for the following well-known yachts: *Constitution, Defender, Volunteer, Jubilee, Colonia, Independence, Ailsa, Navahoe, Weetamoe, Uncle Sam, Effort, Calypso, Flirt, Ariadne, Quissetta, Constance, Intrepid, Vergemere, Resolute, Chanticleer, Senta, Snapper, Raider, Little Haste, Sally VII, Chloris,* and many others. They have on hand constantly high grade sail cloth manufactured especially for them.

Something new in tool steel.—The Sheffield Steelmakers, Ltd., Sheffield, England, are putting something new on the market in the way of special water hardening tool steel, designed especially for trade requiring keen and long lasting cutting implements, such as machine knives and all sorts of keen edged tools. Tests which have been made of this steel have shown most excellent results, according to a very complimentary article published in the *Sheffield Daily Independent,* which gives a long description of this steel. Full information regarding it, together with prices, etc., can be had by applying direct to the makers.

A well-known submarine compound.—Samuel J. Williams & Co., 70 Broad street, New York city, report that they have been making anti-corosive and anti-fouling compounds for iron and steel vessels for sixty-one years. The Williams compound is recognized as being of especial value in tropical waters. It is used by the United States navy and revenue cutter service, by the Old Dominion line, the Red D line, by the Pacific Mail Steamship Company, and by many other lines. The manufacturers have numerous agents and can give estimates on docking and painting at almost any dock in the world.

The B. F. Sturtevant Company, Hyde Park, Mass., reports the following orders recently received: Marine generating sets for F. B. Polson's and Timothy Eaton's yachts building at Toronto, Canada, for the tug *Menasket,* and through the Portsmouth navy yard, for United States navy shops; heating and ventilating systems for the Fall River Iron Works Company, Fall River, Mass.; Nashua Manufacturing Company, Nashua, N. H.; Bemis Bag Company, Kansas City, Mo.; Fore River Shipbuilding Company, Quincy, Mass.; Lewis Crossett, North Abbington, Mass., and Trenton Brass and Machine Company, Trenton, N. J.

Crane Company's fiftieth anniversary.—Crane Company, Chicago, Ill., celebrated its fiftieth anniversary July 4. All of the company's branch house managers took part in the celebration. Monday the branch house managers went through the Crane Company's factories. In the evening they were given a dinner and taken to the "White City." Tuesday morning the managers went to Lake Geneva, Wis., where they were entertained by Mr. R. T. Crane at his summer residence on that and the following day. Thursday, July 6, the company gave to all its employees and their families a picnic at Northwestern Park. About 10,000 people attended this picnic.

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Lists of manufacturers of Zinc White Paints will be furnished on request.

What is claimed to be the largest searchlight in the world has been built at Berlin, Germany, by Siemens & Schubert for the Russian government. It is of 316,000,000 candlepower.

The Armstrong Cork Company, Pittsburg, Pa., has opened a store and office in Cincinnati, O., under the management of Mr. J. L. Hawkins, and will carry there a full line of corks and cork products.

A new shipbuilding company.—The business of T. S. Marvel, Newburg, N. Y., has been transferred to T. S. Marvel Shipbuilding Company, which assumes all of Mr. Marvel's obligations, and will continue the business of ship and engine building.

A satisfactory financial statement.—The statement of earnings for the six months ending June 30, issued by the Chicago Pneumatic Tool Company, Chicago, Ill., must be extremely satisfactory to the stockholders of the company, as the statement shows profits of $413,941.54, and a surplus of $376,898.17, after paying a dividend of $122,275.66.

Steam turbines for Japan.—The General Electric Company, Schenectady, N. Y., has received an order from Japan for thirty-seven Curtis steam turbines with electric generators. The total capacity of these turbines is more than 35,000 horsepower. Eleven of the turbines have already been installed and are operating satisfactorily.

The Independent Pneumatic Tool Company, Chicago, Ill., states that since it has acquired the Aurora Automatic Machinery Company, it has received a large number of orders for "Thor" piston air drills, and other pneumatic tools, and that its business has increased so materially that it has been forced to remove its offices to larger quarters, being now in rooms 1255-1257 of the First National Bank Building.

The New Jersey Asbestos Company, Camden, N. J., reports increased activity in all departments, and is particularly gratified at the reception accorded its new high-pressure ring packing. In the South its business has increased to such an extent as to render it necessary to open a branch office. The company has secured the services of Mr. James O'Rourke, who was for a long time connected with the Southern Railway Company, and who is well and favorably known to both railway and supply men, as well as the trade in general, and who will have his office at 1718 First avenue, Birmingham, Ala.

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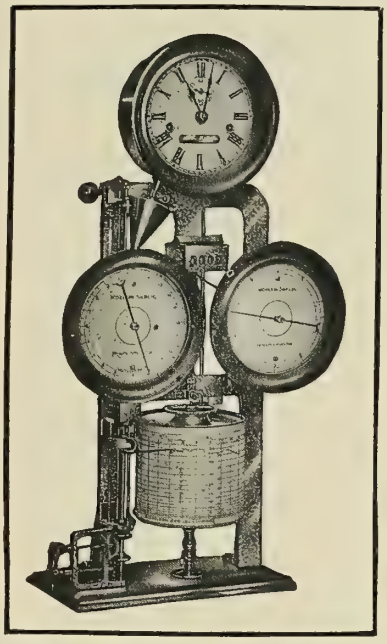

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A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

The yacht Atlantic, winner of the transatlantic race, was equipped with a specially designed steering gear, made by the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass.

The Armstrong Cork Company in England.—Mr. Charles Bishop, formerly chief draftsman and engineer of the Linde British Refrigeration Company, of England, and also manager of the Haslam Foundry and Engineering Company, Derby, England, has taken the management of the British business of the Armstrong Company, Pittsburg, O. This company manufactures, besides life preservers, compressed cork upon a patented system, which is largely used for insulation both on land and sea, and for backing up armor plates, life belts, etc.

Allen pneumatic riveters in demand.—John F. Allen, 370 Gerard avenue, New York city, manufacturer of Allen riveting machines, reports a steady demand for these tools. July sales were as follows: Jeffrey Manufacturing Company, Columbus, O.; Thompson Iron Works, Philadelphia, Pa.; Owego Bridge Company, Owego, N. Y.; Manning Maxwell & Moore, New York; Levering & Garringues Company, Dunnelon, N. J.; Morava Construction Company, Chicago, Ill.; New Castle Bridge Company, Indianapolis, Ind; Interstate Engineering Company, Bedford, O.; American Car and Foundry Company, Wilmington, Del.; Cheboygan Boiler Works Company, Cheboygan, Mich.; American Car and Foundry Company, Jeffersonville, Ind.

Stayman valves on the Roosevelt.—The Stayman valve, manufactured by the Stayman Manufacturing Company, 143 Liberty street, New York city, has been installed on the Peary expedition's ship *Roosevelt.* The engine was a new one, with the customary plug piston which leaked. The company states that, at the request of Commander Peary, the original valve was removed and replaced by a Stayman valve. The action of this valve was such that the engineer was astonished to see the engine start immediately upon the mere touch of the throttle, whereas with the old valve it was necessary to open the throttle half way before the engine would move. The company states that this demonstrates that its valve is absolutely steam tight when in good working condition.

A reliable boiler compound.—The Bird-Archer Company, 209 Washington street, New York city, has received the following letter from J. R. Campbell, chief engineer of steam yacht *Wanderer*: "I beg to make a statement in regard to the results I obtained from the use of your marine boiler compound in the boilers of the steam yacht *Wanderer.* Being told by the inspector that any compound which would remove scale would injure my boilers, I made the following experiment before using the compound in my main boiler. After using sea water for thirty days in our donkey boiler, we opened the boiler and found scale three-eighths of an inch thick. We then refilled the boilers with sea water and added two gallons of your compound. After keeping steam on the boiler for forty-eight hours, we blew the boiler out and found the iron clean, the scale having been dissolved, and blown or washed out. After careful examination, no injurious effects to iron, seams or joints were noted, and in using the steam generated from the water after the compound was added, there were no injurious effects to valve faces or any of the rubbing surfaces, of any sort, where friction takes place. My main boiler will bear out all of the above statements, and would say that the compound was more than satisfactory, and it will always be used by me."

A new sail hook.—Capt. John M. Into, of yacht-racing fame, has invented and perfected a sail hook, which is made to replace the "old style" hitching hooks. The Into hooks are claimed to be proportioned with mathematical accuracy in order to safely meet the severe strains brought to bear upon them during a race. They are quickly operated, a feature which is most necessary, as a loss of ten seconds at a critical moment, during the changing of a sail, might give a competitor the lead and the race. These hooks have been used with success on the *Columbia, Reliance, Ingomar* and *Atlantic,* and have been adopted by the Herreshoff Manufacturing Company, Ratsey and Lapthorn, and others. A letter from Capt. Chas. Barr, of international racing fame, is herewith appended: "In reply to your letter, I beg to say that the reason we adopted your patent spring hook was because the ordinary snap hook, which we first used on the *Columbia,* was always getting afoul of something at a critical time and causing us lots of trouble. On many occasions the balloon jib-topsail caught the spinnaker and, besides tearing the sail, badly delayed us in getting the sails in, and on one occasion was the cause of our competitor getting past us. I have since used the Into hooks on the *Reliance* and the *Ingomar* and have never known it to foul anything, and the crew find it easy to work." The Delaware Marine Supply Manufacturing Company, Wilmington, Del., is sole manufacturer of the hooks.

Chain pipe wrenches.—J. H. Williams & Company, manufacturers of drop forgings, Brooklyn, N. Y., state that they have two kinds of chain to sell with the "Vulcan" chain pipe wrench, but that one of them is superior to the other. The company's flat link chains are from 25 per cent. to 50 per cent. stronger than its cable chains, which the United States and the British governments have pronounced "unsurpassed."

Dependable hydraulic jacks.—Unless a hydraulic jack is absolutely reliable, the engineer, mechanic, railroad man or whoever is using it, is better without it. Just at the critical moment, when everything depends on a jack "standing up," a poorly made device is liable to give way. The consequences are best left to the imagination, they are not pleasant, even to imagine. In the Watson-Stillman hydraulic jacks, made by the Watson-Stillman Company, 46 Dey street, New York city, every such element of uncertainty is eliminated, say the manufacturers, hence the confidence reposed in them by those who have to trust life and limb to the dependability of a hydraulic jack. The cylinders and rams, for which, in some makes, so-called seamless tubing is thought good enough, are in the Watson-Stillman jacks forged from solid steel billets, forged and bored like the cylinder of a high class steam engine. Valves, glands, pistons, etc., are made and finished with equal care, packings and other parts subject to wear are easily accessible and replaceable, the result being a hydraulic jack thoroughly dependable and constantly ready for service. The manufacturers have a list of about 300 styles of hydraulic jacks, which they will send on request.

"It has been rumored several times," says an English exchange, "that the Admiralty has decided to deal with the question of watertight doors in a drastic manner. The present system is in many respects unsatisfactory, and there is no evidence that the Admiralty has profited by the terrible lesson conveyed by the *Victoria* disaster. Curiously enough, the navy which has most energetically faced the problem is that of the United States. In sixteen of their newest warships and cruisers what is known as the 'long arm' system, manufactured by the Long Arm System Company, Cleveland, O., has been adopted. By this means the bulkhead doors and armor hatches are electrically operated in such a way that the officer at the central station on the bridge by turning a wheel can close any one of the doors and hatches. While control is exercised from this central station there is no interference with local control. The officer on the bridge has the assurance that in closing any doors in case of emergency he is not endangering the life of anyone who may be in one of the compartments, because any such man, on whichever side of the door he may be, has within easy reach a handle by which he can himself control the movement of the door for sufficient time to enable him to escape. The system is worked by electricity instead of by hydraulic power, which is a considerable advantage, since the few wires which are necessary may be laid throughout the ship without difficulty. The 'long arm' system has been in operation in the American navy for a considerable time. The doors are tested every month, and the crew thus have every opportunity of becoming familiar with the system. In the *Victoria* disaster we had an illustration of the terrible results of an inadequate system of bulkheads. If the cellular structure of the ship is to be preserved and means of communication provided from compartment to compartment, it is essential that the officer on the bridge should be able to control the whole installation. The 'long arm' system of control possesses the advantages of electrical control from a central station without endangering any of the crew by the sudden closing of a door. The American navy is the only one which has adopted this method of dealing with the bulkhead door difficulty. It is said that the British Admiralty proposes to remove the source of danger by abolishing all communication by means of doors, each compartment being absolutely sealed and connection from one to another obtained only by means of passage above the water-line. It is evident that this method, if adopted, will lead to great waste of time and energy, and it will be interesting to know whether the authorities have seriously taken into consideration the solution of the problem which has recommended itself to the Navy Department at Washington."

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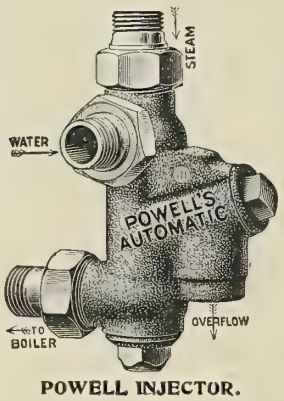

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A good packing.—In packing a stuffing box, as much or more depends on the quality of the packing used as on the skill and care displayed by the engineer. A good packing must lay up easily, so that too much compression is not needed to make it tight. There must be a certain reserve of elasticity, as it wears or settles into its place. Crandall packing, made by the Crandall Packing Company, Palmyra, N. Y., is said to be an especially good packing. It is claimed to have the necessary resiliency. The wearing surface is a covering of braided long-fibre flax, impregnated by a cold oil process with a lubricant which not only increases its wear-resisting capacity, but obviates the friction inseparable from a tightly set up packing. Engineers who have used Crandall packing, are said to commend it highly for its resiliency, anti-friction effect and great durability.

Assistant cylinders for valve gears.—Mr. Luther D. Lovekin, 6320 Drexel Road, Overbrook, Philadelphia, Pa., has placed on the market an assistant cylinder for valve gears, which he states is a money saver for the steamship owner, a labor saver for the engine-room force, and a guarantee that the valve gear will work perfectly. Mr. Lovekin states that his invention may be applied to an engine, old or new, without difficulty, and that it is now in use on engines aggregating more than 130,000 horsepower, among which are the *Texan,* of the American-Hawaiian Steamship Company; the *Massachusetts* and the *Mississippi,* of the Atlantic Transport Steamship Company; the *Manchuria* and *Mongolia,* of the Pacific Mail Steamship Company, and the *Ontario,* of the Merchants' and Miners' Transportation Company. It has also been ordered fitted to the United States cruiser *Washington* and the United States battleship *Kansas.*

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Chapter I. deals with the early installation of electric equipment.

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An Appendix contains chapters VII. and VIII.

Chapter VII. comprises detail drawings and description of a lighting plant for launches. Written by D. A. Richardson.

Chapter VIII. is devoted to isolated plants with generator direct-connected or belted to a gasoline engine, for lighting sailing yachts, large launches, etc.

The book is fully illustrated.

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Marine Engineering, 17 Battery Place, New York

The longer an engineer uses Albany grease the more convinced he becomes that it is truly a panacea for all lubrication troubles, say Adam Cook's Sons, 313 West street, New York city, the only makers. They have received a letter from L. L. Moses, chief engineer of the United States hydraulic dredge *Jacksonville*, which is of decided interest in this connection, and reads: "I am a regular user of your product, and have always had the best of success with it. I am chief engineer of the United States hydraulic dredge *Jacksonville*, working on St. Johns River, Florida, and both of my assistant engineers, as well as myself, swear by Albany grease. We use it on main engine and all auxiliaries, and as we have thirty-three steam cylinders, we have ample opportunity to watch its work under different conditions."

Naval architecture by correspondence.—The Grand Rapids School of Mechanical Drawing, 361-363 Houseman Building, Grand Rapids, Mich., is teaching naval architecture by correspondence, and states that it has students enrolled all over the world who are successfully taking its course. Full details will be sent upon application, to those mentioning Marine Engineering. The following is a synopsis of the courses taught: Geometrical drawing—Terms in geometry illustrated and defined. Plates on pen exercises. A complete system of lettering for drawings, covering three complete plates. Essential problems in geometrical drawing, and such as are met with in every drafting room. Projections of drawings to show different views. Intersections and developments of surfaces. Issometric projections and how to rule your paper for drawing any object so that one view will give a practical idea of the complete construction. Synopsis of mechanical drawing—2. Conventional methods of representing screws. Methods of representing cross sections of different materials. Detail of band wheel. Detail of crank shaft and boxing. Details connecting rod and piston rod and braces. Detail of cross head. Detail of cylinder heads. Detail of steam cap and bolts. Details of slide valve. Detail of engine bed. Details of screws, bolts and nuts. Details of the eccentric. The complete elevation of a 7 x 12 steam engine from the details you have drawn. Plan view and rear elevation. This gives the complete designs and details in full for the 7 x 12 steam engine. 3. The student takes up the complete drawing of a two-horsepower gasoline engine and makes a full size drawing and puts on all of his own dimensions. He is required to make several views of engine and then take the same apart and detail each piece separately, make drawings, tracings and blue prints of same and send them in to the school for corrections. 4. The laying out of a drawing in detail which shows how to begin making the model for the twenty-foot launch. This is drawn to the scale of one inch to the foot and gives the necessary details to enable the student to go about his work in a systematic way. After the student has finished the drawing, he mails it to the school for corrections and approval and begins plate II, which deals further with the construction of the model, giving certain definite lines which are to be drawn according to sections and instructions. He now begins his wood work on the model and goes as far as instructions permit. He then begins on plate III, and at the same time works on his model until instructions have been completed. Details of the drawing of the model, and gives him necessary sections which show clearly how to finish forming the same. Model is taken apart and his lines or curves taken direct from the same onto paper and the sections and plan are given in full. The methods of drawing the proving lines, which gives great accuracy to the work, which is a great help to the builders. Drawings of the plan and cross sections and proving lines in condensed form. Sections of the complete boat. Plan side elevation showing the water-line. The plan view. Special plates on calculation of draught, displacement, and many other problems met with in naval or marine architecture by the latest methods. 5. Lines and sections necessary for the construction of the model of the thirty-eight-foot launch with cabin, which is entirely different shape. Side elevation of the complete launch. Sections through boat and cabin, there being sections so as to show very fully the construction of the cabin. Lines and sections for making the model for the sailing yacht, including the sailing plan. The student makes a complete drawing of the model that he has made according to his own ideas, as a sort of thesis work, and this is sent to the school for filing. This gives a sample of the student's work and is practically a thorough test of the work he has done The complete course in mechanical drawing consists of parts 1, 2, 3. The complete course in boat designing consists of parts 1, 2, 4. The complete course in naval architecture consists of parts 1, 3, 4, 5. For 50 cents in United States stamps the Grand Rapids School of Mechanical Drawing will send one full sized plate of geometrical drawing, one complete drawing of the gas engine in section, and one complete view of the 38-foot yacht, the 50 cents to be applied on course if you enroll as a student.

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Advertisements will be inserted under this heading at the rate of 4 cents per word. No advertisement will be inserted for less than 75 cents for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

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Designing Marine Engineer, 41 years of age, married, desires to change position as Chief Engineer or Chief Draftsman. Fifteen years with present employers. Active, energetic, capable of handling a large number of men. Excellent references and good reasons given for wishing to change. Address ENGINEER, care MARINE ENGINEERING, 17 Battery Place, New York.

NAVAL ARCHITECT WANTS POSITION AND INVESTMENT.

Advertiser, 29, energetic, capable, 12 years' experience, ship and yacht building, now in good position with large shipbuilding firm, desires change to small yacht building firm or naval architect's office; invest $1,000 if desired; partially outside position preferred, with plenty work; references. Address, M. M. K., care MARINE ENGINEERING, 17 Battery Place, N. Y.

POWER DOORS ON NEW BATTLESHIPS.—Contracts have been let to the Long Arm System Company, Cleveland, O., for installing its electrically operated bulkhead doors and hatch gears on the United States battleships *Montana* and *South Carolina*. These two vessels are now in course of construction by the Newport News Shipbuilding and Dry Dock Company, Newport News, Va. The Navy Department specifications for these warships provided that "each (power) door must be capable of permitting operation on the spot by power or by hand from either side, and all such doors are to be capable of being closed by power simultaneously from an emergency station." The "long arm" system is the only one that could meet these requirements.

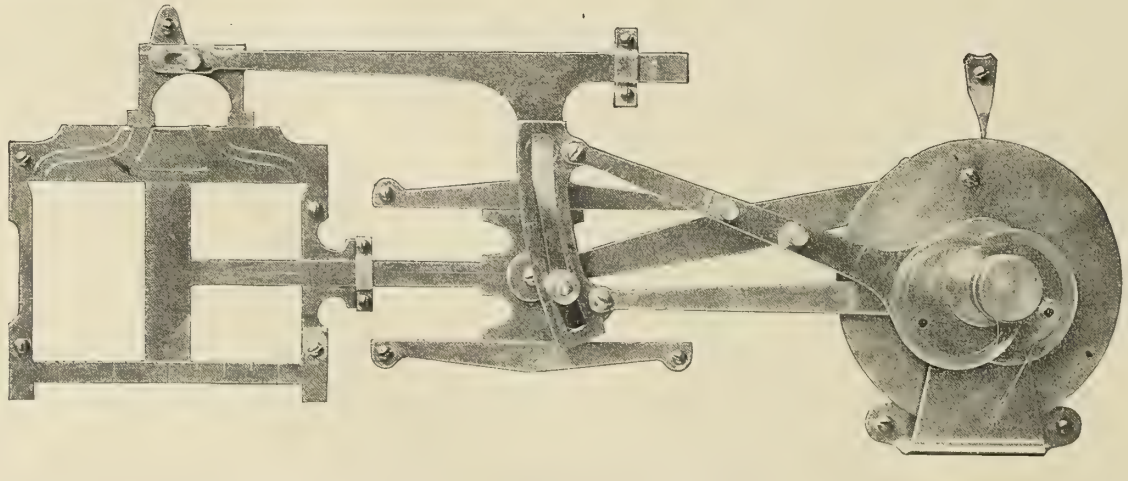
THE PARSONS MARINE STEAM TURBINE COMPANY, LTD., 97 Cedar street, New York city, is prepared to grant licenses in the United States for the building of Parsons turbines for the purpose of marine propulsion. The advantages of the turbine system the company states to be absence of vibration, increased economy in coal consumption, reduced cost of attendance on machinery, reduced consumption of oil and stores, reduced diameter of propeller, giving increased facilities for navigating in shallow waters, and reduction in racing of propellers.

THE FOLLOWING VESSELS HAVE BEEN CLASSED AND RATED by the American Bureau of shipping, 66 Beaver street, New York city: American screw steamers *Onondaga, Guyandotte, Cerberus, Roosevelt, General Robert Swartout, General Timothy Pickering,* American schooner *Winifred A. Toran,* American three-masted schooners *Scotia, Marjorie A. Spencer, Georgia Gilkey, Annie C. Grace, Isaiah K. Stetson,* American half brig *Motley,* British schooner *Mersey,* British three-masted schooners *Nicanor, Drusie, Severn, G. M. Cochrane,* Russian three-masted schooners *Kuutsalo, Aurora,* and Swedish screw steamer *Transit.*

BOTH THE ENGINEER AND THE EMPLOYER will gain by using "Double Service Packing," says the D. S. Paterson Company, Philadelphia, Pa. As the name indicates, says the company, the quality of the packing is such that you secure "double service." "This means a saving in time and trouble to the engineer, when obliged to repack only half as often as necessary with some other grades of packing. The employer not only economizes in the manner already shown, but also from the fact that, while made from material of the very highest quality, it establishes a standard of prices which are lower than many now prevailing. Engineers and employers are often dissatisfied with the packing which they have been using, but do not change because they are not sure what other kind to buy." To answer just such questions, this firm offers you the personal services of its packing expert, with more than nineteen years' practical experience, for which no charge is made, not even suggesting that you buy the company's packing. You are simply told the best kind to get for the work you have to do—the kind that will give best results. There is many a dollar wasted for packing which is not suited to the work for which it is used. To any engineer, mentioning MARINE ENGINEERING, this firm will mail, free of charge, a handsome "taken from life" colored picture, entitled, "Double Service."

Valve and Link Motion

To any reader of Marine Engineering who will send us **Three New Subscriptions,** and $6 domestic (31/6 foreign), we will send free of charge a valve and link motion model.



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Reversible disk valves are described and illustrated in a booklet issued by the William Powell Company, Cincinnati, O. The booklet states: "For more than half a century the products of the Powell factories have been celebrated for superior excellence, and in one article especially—the 'Star' valves—have become, and still remain, the standard make of valves throughout the country up to the introduction of the 'White Star.' But while the 'Star' valve, so well known to the trade, was very satisfactory, yet we have ever striven to keep in the advance on the march of improvements; and as higher and higher steam-pressure service was demanded and adopted in steam engineering, we have constantly increased the efficiency of our product. This booklet is issued to introduce to the trade a radical improvement in valve construction. Our 'Star' valve, previously known so well as the best regrinding valve in the trade, is only surpassed by our 'White Star' product, and this booklet tells you the points of improvement referred to."

"How to Fight Fire" is the title of a booklet issued by the American-La France Fire Engine Company, 149 Broadway, New York city. Referring to the company's "Babcock" fire extinguisher, which the United States Steamboat Inspectors have passed as filling all requirements for use on board ship, the booklet states: "Our 'Babcock' is the standard fire department extinguisher of the United States. There are over one million of them in use in the fire departments alone. It is especially adapted for any service where a regular force of men will be ready to handle it. It has been adopted by the United States government for use in arsenals. We have also installed thousands of them on railroads, steamboats, in packing houses, hospitals, hotels, theaters, etc. The 'Babcock' is a bottle-breaking machine, the acid being held in a sealed bottle. The bottle is crushed by a screw device in the head of the extinguisher whenever it is necessary to put the machine in operation. The whole contents of the bottle are at once mixed with the soda solution and immediate high pressure is the result. The stream from a 'Babcock' is controlled by a shut-off nozzle. The quantity of fire-quenching fluid in an extinguisher is of course limited and the value of being able to expend the stream with economy cannot be overestimated. The shell or cylinder of a 'Babcock' is made of one heavy sheet of copper without rivets or solder joints. The 'Babcock' is without question the most powerful hand fire extinguisher on the market to-day, especially adapted for use on steamboats, railroads, in warehouses, hotels, hospitals, etc."

"Searchlight Projectors" is the title of a booklet issued by the Carlisle & Finch Company, Cincinnati, O. The catalogue states: "We have embodied in our marine projectors all the latest improvements used in this class of apparatus. For lake and seagoing vessels projectors possess many advantages over the lights using silvered copper reflectors. The great accuracy of curvature of the mirrors produces a light of greater carrying power, which will render objects visible at over twice the distance possible with the silvered copper reflectors. The general arrangement of mirror and carbons will be readily seen by referring to the several illustrations following. Owing to the peculiar position of the carbons all the light produced at the arc is cast upon the mirror, and is then both reflected and refracted, so that it emerges from the lamp in a practically straight ray. A focusing screw and hand wheel are provided for varying the spread of the light. The mirror is contained in a spun copper bowl-shaped receptacle which protects it from moisture and damage. On 14-inch and 19-inch projectors the mirror may be swung out to one side for cleaning and trimming the lamp; but on the larger sizes the mirror is fixed, and trimming, etc., is done from the front end only. The weight of the projector is carried on a train of steel balls. The friction is thus so reduced that the lamp may be turned in either direction with the greatest ease. The most important requisite of a successful projector is that it be reliable. To this end we have carefully designed all the parts of our projectors. The base is made broad and heavy, and is of such width that the projector does not look topheavy, but on the contrary presents a most symmetrical appearance."

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When writing to advertisers please refer to Marine Engineering.

Catalogue No. 70, issued by the Peerless Rubber Manufacturing Company, 16 Warren street, New York city, manufacturer of "Rainbow" packing and other rubber goods, is a book of 136 pages, handsomely illustrated in several colors, and one that every engineer should send for. The catalogue gives the following as the history of "Rainbow" packing, and some of the claims the company makes for this packing: "'Rainbow' packing was first introduced in the year 1889 by Mr. Charles H. Dale. The entire process of the manufacture of this packing is a secret which is known only to Mr. Charles A. Hunter, our general superintendent, and Mr. Charles H. Dale, president of this company. Its origin was an accident. A prominent merchant made a suggestion to Mr. Dale, then general sales agent of this company, as to constructing certain material. In attempting to carry out his suggestion we met with failure, and found a large batch of compounded rubber on our hands. Our late superintendent, Mr. Deming, thought he could utilize this rubber and added different material to it, and colored it red, with a view of making sheet packing of it, and to our surprise was produced what all the world knows at the present time as the only effective flange packing in the world. Its color signifies nothing. It was simply a dirty brown color, and the coloring matter was originally put in to make it more presentable, and from the color its name, 'Rainbow,' originated. The fact exists that it stands alone to-day as the only packing in the world that can be put in a joint and full pressure of steam applied immediately without any baking or following up, with every joint guaranteed perfectly tight and true. 'Rainbow' is the acme of success."

Marine pumps and specialties are described in special Catalogue B. 106, issued by the George F. Blake Manufacturing Company, 114 Liberty street, New York city. This is a very complete and handsomely illustrated book of 156 pages, a copy of which will be sent free upon request to every reader of Marine Engineering mentioning this magazine. The introduction to the catalogue states: "Blake marine pumps have come to be so generally recognized as the standard in the United States, and types and designs have increased so rapidly in number during the past few years, that it has been considered necessary to issue this new marine catalogue. It would be impossible to illustrate and tabulate all the sizes and classes of pumps which we can furnish on short notice from patterns in stock. We would, therefore, be pleased to learn from our customers their special requirements, on receipt of which we will submit drawings, estimates, and full specifications. For marine service we have two standard constructions, as follows: (A) Water ends of hard, close-grained cast iron, lined with heavy composition liners; water pistons of composition, packed with fibrous packing of special quality; piston rods of Tobin bronze; valve seats and bolts of composition; valve springs of phosphor bronze. In most of the vertical-piston pumps the valve bolts extend down through the discharge-valve seat to the suction-valve seat, and a lock nut holds the seats and all movable parts in place. This type of construction is in general use on the majority of merchant vessels. (B) With the entire water end or air end of the pump of composition, otherwise fitted as above. This construction is customary in pumps for naval use, high-class yachts, etc. With each pump are furnished the required special wrenches, drip cocks, drain cocks, and lubricators; these fittings being included in the price. At an extra price the steam cylinders will be covered with the best quality of non-conducting material and lagged with Russia iron. We can also furnish, when desired, approved metallic packing for the the steam piston rod and valve-stem stuffing boxes at a slight extra expense."

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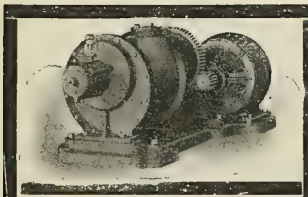

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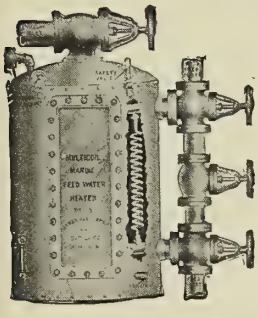

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The September and October stock list, issued by the Scully Steel and Iron Company, Chicago, Ill., should be sent for by anyone interested in boiler, tank, and sheet steel, boiler tubes, wire rope, boiler braces, boilermakers' hand and power machinery, pneumatic tools, etc.

The Bantam Anti-Friction Company, Bantam, Litchfield Co., Conn., is sending out mailing cards calling attention to its anti-friction metal. It has been suggested that the town of Bantam change its name to Rogersville, in honor of Mr. W. H. Rogers, president of the company.

Smith & Robinson, engineers, 605 Provident Building, Philadelphia, Pa., are issuing a pamphlet in which they state that they are prepared to handle marine engineering, insurance, and general engineering promptly and economically, having had long experience in these special branches. The firm state that they make a specialty of the rearrangement of ships, machinery, and pipes, to give more efficient service, and that they survey and inspect all classes of vessels for insurance and repairs.

Dearing water-tube boilers are described and illustrated in a catalogue issued by the Dearing Water-Tube Boiler Company, Detroit, Mich. The company makes the following statements regarding its boilers: "The Dearing water-tube boiler was designed especially to meet the demand for high-pressure steam generators, and in its construction has been made to conform with the following requirements: (1) A perfect circulation in all its parts. There are in this boiler no conflicting currents; as all passageways are so designed that the circulation is continuous and uninterruptedly in one direction. The importance of perfect circulation in the water-tube boiler cannot be overestimated. We have seen water-tube boilers operated at a moderate rate of cost and giving fairly good results, but the moment they were crowded a little the circulation was found to be insufficient to prevent the tubes most exposed to the fire from overheating. When such overheating occurs, the life of the tube must be short, and the common result is the bursting of the tube, with the consequent delay and trouble in making repairs. (2) The use of such materials as practical use has shown to be the most suitable for the duty required. (3) Settling chambers, in which the action of the water in circulating deposits the impurities of the water in such a way that impurities may be readily removed by the use of a blow-off pipe. (4) The proportioning of heating surface so as to get the best results obtainable, and the placing of heating surfaces practically at right angles to the travel of the heat rising from the grates, by which arrangement the currents of heat are broken up and distributed through the generating tubes in such a way as to thoroughly absorb the heat into the water, and thus secure great fuel economy. (5) Steam dome properly proportioned, giving ample capacity for steam room, and sufficient water surface to allow the rising steam to easily separate from the water, thus giving the boiler a steady steaming capacity and a steady reliable water level, preventing priming, and in connection with a system of baffle plates, dry pipes, and superheating surfaces, insuring perfectly dry superheated steam. (6) A construction so much stronger than the actual requirements that the danger of rupture of any of the parts is practically done away with and at the same time so arranged that if a rupture should occur it would be confined to such a small part or section that it could not produce an explosion and could be readily replaced. (7) A construction which, in the event of repairs being needed, does not require the use of special tools, expert workmen, or material not easily obtained."

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Large orders for air ports.—The Delaware Marine Supply Manufacturing Company, Wilmington, Del., reports that it has on hand large orders for air ports for many shipyards on the Atlantic Coast and on the Great Lakes. One contract is for all the lights for the two ferryboats the Harlan & Hollingsworth Company, of Wilmington, Del., is building for the Central Railroad of New Jersey, and calls for an air port cast from the same pattern as those previously supplied by this company for similar vessels. The Delaware Marine Supply Manufacturing Company states that the 24-inch air ports it is now building are the heaviest air ports of this type ever constructed. The glass is 1¼ inches thick and the frame is made watertight by the use of four clamping screws.

Vertical variable-speed motors.—There is a large field in industrial-plant work for the vertical motor. Its use enables the machine designer to do away with the necessity of turned belt, beveled gears, etc. The equipment makes the driven machine more compact in arrangement and secures greater economy of operation than is possible by ordinary means of power of transmission. The Northern Electrical Manufacturing Company, Madison, Wis., states that it has paid special attention to the development of vertical motors, and in their design eliminates all of the trouble due to lubrication of a vertical armature shaft. The Northern vertical motor is said to be extensively employed in all fields of work. Where required the Northern single-voltage system is applied to the vertical motors, thus making it possible to operate the driven machine at the speed best suited to the requirements of the work. Simple controlling devices are used for the Northern single-voltage system and the motors operate from any ordinary two-wire, single-voltage, direct-current circuit.

The advantages of mechanical draft.—The B. F. Sturtevant Company, Boston, Mass., in its treatise entitled "Mechanical Draft," points out that to a great extent the advantages of this method of draft production are interdependent and that the possession of one advantage is evidence of the possession of others of similar character. "Thus the very adaptability of mechanical draft is indicative of the fact that it is more flexible than that produced by the chimney, is more readily controlled, and less influenced by climatic changes; while the apparatus for its production is more readily transported and has a higher potential value than a chimney. To a considerable extent these stand out as the convenience of this method, regardless of their economies. When it is shown that increased efficiency can be secured by a method that is more convenient the advantage of mechanical draft is established. The omission of the chimney is sometimes of far greater importance than would at first appear, while the readiness with which the rate of combustion may be increased is doubly appreciated when it is shown that under proper conditions the efficiency of combustion may be increased thereby. The purely economic features are presented most prominently in the ability to utilize low-grade fuels. The economy in the quantity of fuel consumed has, in its relation to the use of mechanical draft on shipboard, an advantage which is closely allied to that resulting from the decreased space occupied. The economic results which may be secured through the introduction of mechanical stokers and devices for utilizing the waste heat of the gases are rendered most evident under the conditions of mechanical draft production, as are also the great advantage of preventing smoke and the blessing of good ventilation as they are exemplified on shipboard. The facts that the size of a boiler plant required for a given output can be reduced when a fan is substituted for a chimney, that the cost of the mechanical-draft plant is usually far less than that of the chimney-draft plant, and that its operating expense is likewise less under proper conditions, all point to the purely economic advantages of the method which it is the purpose of this book to present. When these are considered in the light of the convenience and various other advantages of mechanical draft, its evident superiority to chimney draft must be conclusively established in the mind of anyone who has read these pages."

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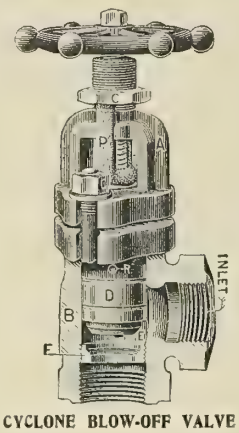

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The Dayton Pneumatic Tool Company, Dayton, Ohio, has appointed William Francis, 803 Empire Building, Pittsburg, Pa., its representative in the Pittsburg district. The company reports a satisfactory business, and additional equipment consisting of turret lathes, milling machines, etc., is being installed at its Dayton works.

A Chance Courtship

is a story of an unconventional love match, well told and beautifully illustrated. As a bit of readable fiction the story is well worth writing for. It is contained in a handsomely bound book of 128 pages, a portion of which is devoted to the attractive mountain and lake resorts along the Lackawanna Railroad. It is a book you will like to see. It may be had by sending 10 cents in postage stamps to T. W. Lee, General Passenger Agent, Lackawanna Railroad, New York.

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Cables used for hoisting purposes, are subject to both internal and external wear. Unless they are kept well lubricated they wear and deteriorate rapidly. The Joseph Dixon Crucible Company, Jersey City, N. J., is putting on the market a graphite wire-rope dressing which is said to greatly prolong the life of wire ropes and cables.

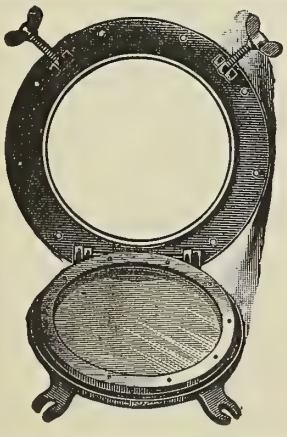
The Bird-Archer Company, 209 Washington street, New York city, manufacturer of marine boiler compounds, has received the following letter from Lewis J. Byrnes, chief engineer of the steam yacht *Kismet:* "After five months' use of your compound, under trying conditions, I have no hesitancy in saying it is the best boiler cleaner that has ever come under my notice. At the end of the season some of the tubes were removed for inspection. I was agreeably surprised at the clean, bright appearance of the tubes, my surprise being due to the fact that we use water from various sources along the coast, and carry high working pressure of 240 pounds. Dirty, and consequently leaky boilers, have long been a bane to the existence of the engineer. I think that in your compound we have found a long-sought relief."

Magnetic accelerators and couplings are described and illustrated in a pamphlet published by the Cutler-Hammer Clutch Company, Milwaukee, Wis., which makes the following statements in introducing its device: "Despite the remarkable progress of the past few years in mechanical and electrical lines, there remains one important detail in the art of power development and its distribution which, until recently, has shown little advance. The friction clutch of to-day, with its toggle joints, pivoted arms, sliding collar, etc., is a quarter of a century behind the modern apparatus in connection with which it is used. Compared to the self-contained automatic engine, with its clean and efficient oiling system, or the enclosed motor with its self-oiling bearings, the ordinary friction clutch with its grease cups, open and exposed working parts smeared with grease and dirt, is a relic of the past, and has been tolerated only because there was nothing to take its place. Designers, engineers, and mechanics, particularly those engaged in the design, application, or installation of power-distributing systems, are alive to the demand for a clutch which shall possess the advantages possessed by the machinery which makes up the remainder of the equipment with which the clutches are used. These advantages are: general neatness; an efficient automatic oiling system; ease and convenience of operation, automatic if desired; self-contained or enclosed working parts; durability, and reliability of operation. It is to meet these demands that we have designed and perfected the devices herein described."

BUSINESS NOTES.

Threading and cutting machines, electrically driven, are advertised by D. Saunders' Sons, Yonkers, N. Y. This firm builds an electric motor-driven threading and cutting machine that is claimed to have many advantages over a belt-driven machine. There is nothing to attach or detach; the die head can be pushed to one side and the pipe cut without taking the die head off the machine or pushing the pipe over the chasers and spoiling them. An automatic pump keeps oil constantly on the chasers and cutting-off tool. Catalogue free upon application.

The Dean boiler-tube cleaner.—The William B. Pierce Company, 321 Washington street, Buffalo, N. Y., makers of the Dean boiler-tube cleaner, have just completed their 6,000th machine. This, the company states, shows that its claims in regard to the efficiency of the Dean cleaner is borne out by the facts. This cleaner is adapted for both water tube and return tubular boilers and its work is said to be very thorough in removing scale from both sides of the tube. The cleaner is remarkably simple in operation, say the makers, and is worked by either steam or compressed air, and as the barrel of the cleaner fits snugly into a water-tube boiler tube, it must remove all scale before it can pass any point. The cleaner works on the vibratory principle, and the rapid knocking of the hammer head on the tube knocks the scale off. The force of the blow is very light and no damage has resulted to tubes from its use. So confident is the William B. Pierce Company that its cleaner is the "best ever" that it will loan a cleaner to anyone for trial, and urge a comparison of its merits with any device known for removing scale. Steamships desiring to accept this trial offer will please send the size of tubes and type of boilers when requesting a trial cleaner. As a part of the guarantee accompanying the Dean boiler-tube cleaner the makers guarantee that the cleaner will pay for itself in fuel saved no matter what agent is not used for the removal or prevention of scale.



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157 and 158 SOUTH STREET, NEW YORK.

MANUFACTURERS OF

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Full line of Shipbuilders' Material and Supplies.—Oakum, Caulking Cotton, Deck Plugs, Chains, Anchors, Spikes, Bolts, Marine Glue, etc.

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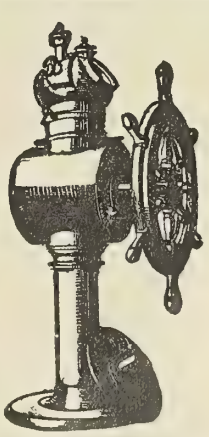

A RAPIDLY-GROWING BUSINESS.—A year ago, when the E. M. Dart Manufacturing Company, Providence, R. I., held its annual meeting, President Dart made a most gratifying report to the stockholders showing an increase of over 50 percent in business over the preceding year. The stockholders seemed to think that this would be high-water mark for some years to come, but orders have come in so fast during the past year and the size of the orders has been so large, that the present year will show an even greater increase over the preceding year than was the case a year ago. In order to keep up with the demand for Dart pipe unions and other specialties of this company, an addition to the present factory is being built which has an inside measurement of 41 by 114 feet. With this great increase in facilities for turning out work the company will be able to fill all orders promptly.

MARINE MACHINERY.—A number of complete outfits of marine steam machinery are now nearing completion at the shops of the Marine Iron Works, Chicago, Ill., that will be widely separated when they reach their final destination. One is for Burma, British India, which is the ninth outfit built by the same company for that district. A fore-and-aft compound outfit is for Cuba, and a duplicate of it for Nicaragua, as also Mexico. Some heavy service tugboat machinery (fore-and-aft compound) is for a Boston company operating on Gulf of Mexico, and a similar outfit in smaller size recently shipped for the new coast survey boat at New Orleans for the United States Engineer Corps. Two river steamers are to be shipped in the "knock-down" to Bolivia. Also a single-screw deep-water boat for similar shipment to the same country. A four-cylinder inboard surface condensing outfit for the new 100-foot steel steamboat being built at Frontera, Mexico, by the Bushnell Line (the Tabasco-Chiapas Trading & Transportation Company), that is nearly a duplicate, but larger than either one of the last shipments made to them by the same company. For the Yaqui River, in western Mexico, a difficult stream to navigate, the Marine Iron Works has received an order for a complete outfit for a vessel to ply in the merchandising and similar service. These, with some fore-and-aft compound condensing machinery for Montreal, Canada, and single-screw outfits for the Amazon, together with a fair amount of work for nearby customers, make the Marine Iron Works' shops quite busy, even during what would appear to be the dull season, with a gratifying amount of work in sight for the winter months.

S. S.
"ROOSEVELT"
PEARY'S
NORTH POLE BOAT
is equipped with
THE
Stayman Valve
on account of
HIGH ECONOMY
being absolutely necessary to
REACH POLE
Let us tell YOU about it
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Who Wants Thirty Dollars?

THE READER who will send us the largest number of new subscriptions to MARINE ENGINEERING, between now and the last mail received in our office on March 1st, next, will be awarded a prize of

Thirty Dollars
IN CASH

The renewal of three old subscribers will count as equal to one new subscriber.

Blank forms to work with can be had upon application to us.

Those who compete for the thirty dollars but who fail to get it, will be paid a commission of 25 per cent. in cash, or 33⅓ per cent. in books which we publish, so as to compensate them for their efforts.

Here is a good chance for wide-a-wake men to make money.

Marine Engineering
17 Battery Place
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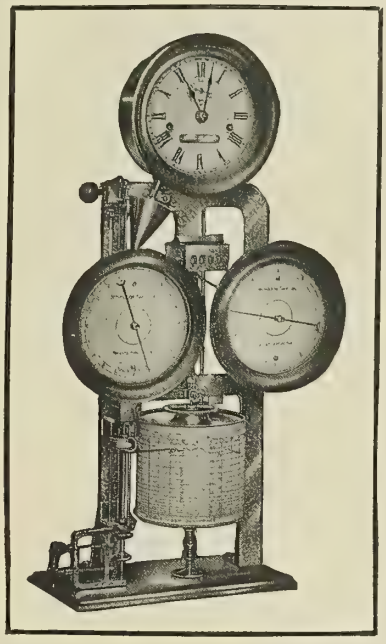
YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

Catalogues and Full Information on Request.

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Pipe Cutter

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Lasts longer and does better work than any other. Makes a square, smooth cut—no filing necessary. The rolls keep the cutter straight automatically, and remove all burr. Quickly converted into a three-wheel cutter. No thread in the handle bearing, an interchangeable nut being used instead—but let our catalog No. 34 tell you all about it. Sent free. Write for it.

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Advertisements will be inserted under this heading at the rate of 4 cents per word. No advertisement will be inserted for less than 75 cents for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

NAVAL ARCHITECT WANTS POSITION AND INVESTMENT.

Advertiser, 29, energetic, capable, 12 years' experience, ship and yacht building, now in good position with large shipbuilding firm, desires change to small yacht building firm or naval architect's office; invest $1,000 if desired; partially outside position preferred, with plenty work; references. Address, M. M. K., care Marine Engineering, 17 Battery Place, N. Y.

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A Hollander, graduated from the Delft Technical University, first-class references, speaks and writes English, French, and German, desires position in shipyard; large salary not required. Address A. M. SCHIPPERS, Veaardingen, Holland.

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Young man with experience and education, practical, capable to assume full charge of designing and construction, wants position as shipbuilding draftsman in small yard. Address Y. X., care Marine Engineering, 17 Battery Place, New York.

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A man 40 years old, married, college graduate, 17 years' experience in shipbuilding as designer, in charge of construction, and engineer representative, having extended business acquaintance, desires position as sales representative in New York city of established firm connected with shipbuilding. Address EXPERIENCED, care Marine Engineering, 17 Battery Place, New York.

Wire rope for towing hawsers.—The Durable Wire Rope Company, 288 Congress street, Boston, Mass., states that its rope is unequaled for ships' rigging, mooring lines, and towing hawsers. The company's cable-laid hawsers are made of four or five durable wire ropes laid around a specially treated Manila center, and are stated to be smaller and more flexible than Manila hawsers of equal strength. Bulletin No. 7 will be forwarded upon application.

"Fuel-oil furnaces and equipment has been our business for fifteen years," says the Rockwell Engineering Company, 26 Cortlandt street, New York city. Regarding its rivet forge, the company says "control, efficiency, economy, and practical indestructibility are governing qualities of a good heater. . . . This user of air and oil, or kerosene, induces the high, soft heat necessary to a superior forge. Hardening, tempering, and light forging are also feasible."

A course in indicator instruction.—The Indicator Instruction Company, Scranton, Pa., has for sixteen years made a specialty of teaching the use of the steam-engine indicator by correspondence. The company's original plan was to loan an indicator to students, while the course of instruction lasted, but there were so many applications from those who desired to own the instrument that the company now gives away a simple form of indicator to each student. A thorough knowledge of the use of the steam-engine indicator is indispensable to any engineer who hopes to rise in his profession. The indicator tells the horsepower developed; whether or not the boiler pressure is realized in the engine cylinder, and if not how much pressure is lost, due to a steam pipe too long or having too many bends, or from late or insufficient valve opening; whether waste steam is permitted to escape without undue back pressure; whether the work done by the head and crank ends of the cylinder and the high- and low-pressure cylinder of a compound engine is evenly balanced; whether there is any leakage by valves or piston; whether the engine is overloaded or underloaded; whether a larger engine should be used; and many other points the knowledge of which is essential for procuring the utmost efficiency of a steam plant. The Indicator Instruction Company states that its course is so simple that a man of very moderate education can readily master it. Particulars upon application.

The Reason your dealer tries to sell you a "JUST AS GOOD" as

RAINBOW PACKING

is because his profits are 50 per cent. greater on the imitation kind.

THE ENGINEER'S FRIEND

¶ State clearly on your packing orders RAINBOW and be sure you get the genuine. Look for the trade-mark, three rows of diamonds in black, in each one of which occurs the word RAINBOW.

¶ RAINBOW PACKING is the most satisfactory packing ever made. Can't blow RAINBOW out. Makes a perfectly tight joint for air, steam, hot or cold water, gas, oil or ammonia.

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TRADE PUBLICATIONS.

Powell's reversible disk valves are illustrated and described in a sixteen-page pocket-size catalogue distributed by the William Powell Company, Cincinnati, Ohio. There is a considerable amount of general information on the subject of valves, and those specifically referred to are well illustrated with sectional views showing in detail the manner in which the valves are made. The catalogue is more than ordinarily interesting, and every reader who has to do with purchasing or using valves should send for a copy of it.

Engineering specialties.—James L. Robertson & Son, 204 Fulton street, New York city, have issued a 64-page illustrated catalogue, and every engineer should send for a copy, as it contains a great deal of information which will be a great aid when ordering supplies. Regarding its indicator the catalogue says: "The Robertson-Thompson indicator is a modern instrument, and was designed for the attainment of the greatest accuracy when used in connection with the high speeds in use in modern engineering practice. It is wide, with perfectly-adjusted bearings, the moving parts are light, and the construction simple." Regarding the company's "take-up" device, the catalogue says: "Knowing the great trouble experienced in using detent motions on indicators to keep the cord from slipping off the drum, getting tangled and breaking, we have devised a take-up device which is so arranged that it can be put on indicators and take the place of a regular cord pulley. It can be used on reducing motions or any other attachment between the crosshead and drum of the indicator. The object of the device is to immediately pick up all slack cord which is found when detent motion is used on an indicator. The device is very simple, cannot get out of order, and requires no attention." Among the other specialties described in this catalogue are steam-damper regulators, Hine eliminators, Reliance safety water columns, copper-coil feed-water heaters, hot-water generators, regulating and reducing valves, pump governors, pressure regulators, steam separators, and grease extractors, automatic injectors, oil filters, exhaust-pipe heads, grate bars, grease cups, "Eureka" packings, packing tools, recording gauges, gauge-testing outfits, double-acting power pumps, planimeters, thermometers, oil pumps, and water gauges.

No handsomer catalogue has ever come to our notice than the one just issued by the Brown Hoisting Machinery Company, Cleveland, O. It is a large volume, 9 by 12 inches in size, heavily bound in cloth, and comprising two hundred pages. It is printed on very heavy coated paper and is given over almost exclusively to full-page photographs of various installations by this company. This company makes a specialty of designing and manufacturing complete plants for the rapid and economical handling of material, and it has been specially successful in installing high-speed gantry and cantilever cranes in shipyards, as well as a full line of cranes and hoists, such as are used in various ways in shipbuilding and in handling cargoes. Many of the large pictures show plants which this company has installed along the Great Lakes for the rapid handling of ore and coal. Each of the parts that go to make these hoists is handsomely illustrated and described, so that the text gives a very complete description of this company's system. Nothing could more graphically illustrate the immense traffic of our Great Lakes than the pictures in this handsome catalogue showing the facilities for handling coal and ore. Illustrations are also given of the many ore and coal-handling plants in various parts of the world—Cuba, Sweden, Italy, Mexico, England, and elsewhere. There are also illustrations of the coaling equipment in the United States naval station at New London, and at the Dry Tortugas Islands of Florida; illustrations of the manner in which ore, etc., is removed from the capacious holds of the big steamers on the Great Lakes; illustrations and description of the electric cantilever cranes in the Cramp shipyard, with much data regarding them; also some of the plants in the Newport News shipyard, the yard of Harland & Wolff, Belfast, Ireland, and in shipyards in Trieste, Austria; Newcastle-on-Tyne, England; U. S. Navy Yard, Brooklyn; Barrow-in-Furness, England; several yards of the American Shipbuilding Company on the Great Lakes, etc.

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When writing to advertisers please refer to Marine Engineering.

The Du Brie gasoline engines, two- and four-cycle, are illustrated in a catalogue issued by the Du Brie Motor Company, 34 Brush street, Detroit, Mich. There are a number of pictures in the catalogue which show the general style and type of this engine, and the text would indicate that the sizes vary from 2 to 100 horsepower. Copies of the catalogue can be had free by the asking through the Du Brie Company.

Cincinnati milling machines and cutter grinders are very handsomely illustrated and completely described in an exceptionally attractive catalogue of 110 pages which is now ready for distribution. A copy of this catalogue can be had free by any reader of Marine Engineering upon application to the company. The catalogue illustrates this company's complete line of machines and attachments. Four new sizes of plain millers have recently been added by the company. All of them are designed for the quick handling of light work and are particularly adapted for the use of manufacturers of small devices. Among the new attachments will be found one for high-number indexing, one for rack indexing, an attachment for milling large cams and an attachment for milling worm wheels. There is also quite a little information regarding the use of electricity for direct application to these machines. There is also valuable information regarding high speed for rapid cutting.

Draftsmen and those who are interested or connected with drafting, should send to the Keuffel & Esser Company, 127 Fulton street, New York, N. Y., for a four-page circular which is being distributed regarding Duplex drawing paper No. 50. This circular contains much information regarding this paper and inclosed with it are samples of "Colonna" tracing paper, something new which this company is now offering to the trade. It is extra fine, strong, and very transparent paper, which takes ink, pencil, and colors well, stands considerable erasing, and its bluish tint makes it excellent for blue printing. It serves in many cases as a good substitute for tracing cloth. The company is also sending out samples of Duplex detail drawing paper, which has been one of the standard products of this company, having been first put on the market in 1881, and which is generally recognized as a most excellent detail drawing paper. It is tough, hard paper with resistant surface, and stands unlimited erasing, and is claimed to be equally well adapted for pencil, ink, and colors.

Corrugated concrete piles are described and illustrated in a catalogue issued by the Corrugated Concrete Pile Company, New York city. The following claims are made for these piles: "Concrete piles are better than the best wooden pile. They improve with age, whether wet or dry, and are indestructible; corrugated concrete piles eliminate the disadvantages of the ordinary concrete pile; they have, moreover, several marked advantages not possessed by any other pile; they are made in plain sight above the surface of the ground, and the reinforcement and compacting of the concrete are perfect; they are always perfect, because they are made where the inspectors can follow every step in the process; they can be inspected after completion and before driving; they save time, because they can be cast while the excavating is being done. Once driven, they can be loaded immediately if desired; they present more surface for skin friction than any other pile of the same cubical contents; they are driven with a jet working through the hollow core—only the final settling is given with a piledriver; they are theoretically right—that they are also practically right has been demonstrated by tests just completed in Sioux City, Ia."

Users of gas engines, and those of our readers who are interested in them, should send for a copy of the catalogue known as Circular No. 7, issued by the Toquet Motor Company, No. 1 Madison avenue, New York city. It is a neatly printed catalogue of fourteen pages, and gives detailed information regarding this company's motors of different sizes, and also instructions for installing them in boats. Inclosed in the catalogue is a circular containing testimonials from users of these engines. Among these testimonials is the following, which is typical of the others: "I have run gas engines for five years, and have used a number of makes, but like Toquet best. My engines have been in continuous use since last July and run as smooth as ever. I have run them for 23 hours without a stop, and for several weeks this fall ran them 16 to 20 hours out of the 24, as I was fishing at Plymouth, 48 miles down the coast, making a round trip every day. They have never given me any trouble or caused me to lose any time, and I have had to get no new parts yet. The separate bilge pump is very handy as it keeps a boat dry and does not have to be watched like those on other engines that go through water jacket. The spark control is good, being quick and positive. The parts are strong and the bearings very heavy. I have no fault to find with them. I have used them in all sorts of weather, wet and hot and below zero. They work all right under any conditions. I have towed a 75-foot fishing schooner against a strong tide with my boat."

Oxide of Zinc

And nothing besides

OXIDE OF ZINC

gives a permanent, clean white or tint on vessels—interior or exterior.

FREE, OUR PRACTICAL PAMPHLETS:

"The Paint Question,"
"Paints in Architecture,"
"Specifications for Architects,"
"French Government Decrees,"
"Paint: Why, How and When."

THE NEW JERSEY ZINC CO
71 BROADWAY,
NEW YORK

We do not grind zinc in oil. Lists of manufacturers of high grade Zinc White Paints sent on request.

Every reader who sends to the Standard Engineering Company, Elwood City, Pa., will have sent to him a series of blotting papers, on each of which is illustrated some machine or tool manufactured by this company. These tools include pipe threading and cutting machines, bolt threaders, and other specialties.

Lubricating oils are described in an ingenious folder which is being distributed by G. E. Hall, 211 Centre street, New York. All the reader needs to do is to "press the button" and the folder opens. This folder gives a brief description of the lubricating oils which Mr. Hall sells.

A free copy of a catalogue describing the Marsh tank and vacuum pumps, will be sent to all inquirers who write to the American Steam Pump Company, Battle Creek, Mich., and mention Marine Engineering. A special feature claimed for these pumps is the self-governing steam valve. There is no outside valve gear. A number of illustrations are given of different types of the pumps referred to, and there are tables giving the necessary information regarding suction and delivery, etc.

Engineering **Navigation**

In charge of J. G. KREER (N. A. and M. E.), Graduate of Royal School Naval Arch., Berlin, Germany.

In charge of W. J. WILSON, Graduate of U.S. Naval Academy, Annapolis, Md.

LEARN RIGHT WHILE YOU'RE AT IT

A full and complete course of instruction in Lake and Ocean Navigation and Marine Engineering. Also special branches taught those desiring to qualify themselves for better positions in the Marine Service. Students taught by correspondence. Students may begin at any time. Diplomas will be issued to all graduates passing satisfactory final examinations. Send for Circular.

CHICAGO NAUTICAL SCHOOL, *10th Year*
MASONIC TEMPLE, CHICAGO, ILL.
W. J. WILSON, Principal (Late Lieutenant, U. S. N.)

DIXON'S GRAPHITE LUBRICANTS ON SHIPBOARD

ASSURE NOTABLE RESULTS IN ECONOMY AND EFFICIENCY WHICH CANNOT BE OTHERWISE SECURED.

VALUABLE LITERATURE AND TEST SAMPLES FREE.

WRITE FOR CATALOGUE 75-I.

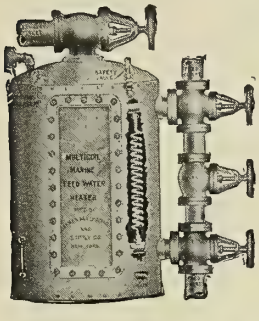
JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

A WORKMAN DOES HIS BEST WITH THE AID OF NORTHERN MOTORS

567
THEY ease his labors, and thus permit of most intelligent application of his skill.
Booklet No. 2138

NORTHERN ELECTRICAL MFG. CO.
Engineers
Manufacturers
MADISON WIS., U. S. A.

MULTICOIL Marine Feed Water Heater



MORE EFFICIENT THAN A JET HEATER.

ONLY ONE PUMP REQUIRED.

WORKS ENTIRELY AUTOMATIC.

CAN BE LOCATED ANYWHERE CONVENIENT TO FEED LINE.

M'f'd. by JAMES REILLY REPAIR & SUPPLY CO.
229-233 WEST STREET, - - NEW YORK

"American" power pumps and air compressors are described in an illustrated booklet issued by the American Steam Pump Company, Battle Creek, Mich.

Direct constant-feed milling machines are described in an illustrated folder issued by the Garvin Machine Company, Spring and Varick streets, New York city. The folder states that the company's new designs of milling machines are characterized by a number of important and original features, combined with the general unity of design adapted to secure efficiency for heavy service by a great increase in driving power, transmission of feed by the most direct means, and the large size of important-acting parts.

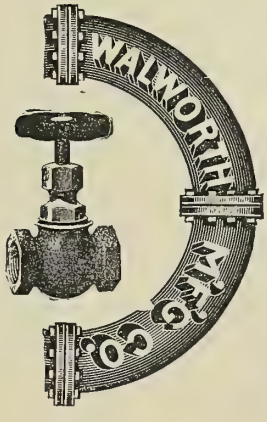
Users of fire extinguishers will have sent to them free upon request a booklet giving much information regarding putting out fires, by the American dry powder fire extinguisher, by writing to the American Chemical Company, Lebanon, Pa. This extinguisher has been on the market for many years, and is generally used in manufacturing establishments as well as on board vessels of all kinds. It is inexpensive, yet it is claimed to be one of the most efficient extinguishers on the market. One strong point claimed for this extinguisher is that while it destroys all conditions of fires, it does so without damage to property from chemicals, etc.

Mechanical oil pumps for steam engines, pumps, etc., are described and illustrated in a pamphlet issued by the Lunkenheimer Company, Cincinnati, O. Regarding its double-feed, mechanical oil pump, the company says that it is adapted for large tandem or cross-compound engines, where a reliable pump is required for two independent feeds; as, for example, to tap the steam chest over the steam valves of a Corliss engine, and in this way get the oil at once where it is most needed. The action of this pump is positive, and with every stroke of the plungers the oil is forced directly into the steam chests of cylinders. The pamphlet contains a number of letters from users of the Lunkenheimer oil pumps, expressing great satisfaction with their action.

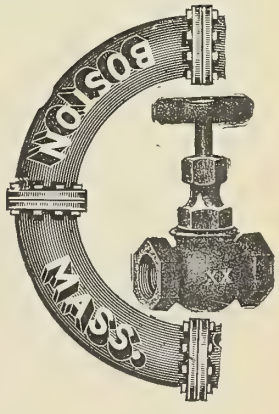
Metallic packings are described in a booklet issued by the United States Metallic Packing Company, 427 North Thirteenth street, Philadelphia, Pa. Among other claims the company makes for its packing the booklet gives the following: "The main success of our packing is due to its flexibility; that is, no matter how badly an engine is out of line or how much play there is between crossheads and guides or between piston and cylinder, our packing floats with the rod, offering very little resistance. In fact, we do not know what it is to have a hot rod with our packing from any fault of the packing itself. This flexibility is due to the combination of the ball joint with the sliding face of the vibrating cup. Other types of packing not having this flexibility cause severe wear on rods and packing, and excessive friction."

Electric traveling hoists and trolleys are described and illustrated in a catalogue issued by the Niles-Bement-Pond Company, 111 Broadway, New York city. This catalogue states: "The economy of handling heavy material by electric traveling cranes is now so universally accepted as to be beyond question, but for the moving from place to place of loads weighing between one-half and five tons, the use of electric traveling cranes is not as universal as it should be. As the ordinary type of crane is frequently too expensive to justify its installation for this service, we have designed a line of electric traveling trolleys and hoists which are illustrated. These trolleys and hoists run on a single I-beam, making it possible to install them in places where it would be impossible to arrange for crane runways; the expense, too, of putting up the I-beam is comparatively slight. For loads above five tons, it is usually preferable to use our standard electric traveling cranes, which are described in our large crane catalogue."

Mr. Engineer



you should prove your purchases. Get your evidence from the balances. When you've got your weight-value fixed, then see that the thick-and-thin of it means the wear and tear that your money should cover. The sixty- three years of our business life were spent in giving you the solid values that will stand any test. The kinds of Valves we make are limited only by the needs of Steam, Water and Gas work.



WALWORTH MFG. CO., - BOSTON

"Small Motors" is the title of Bulletin No. 60, issued by the Crocker-Wheeler Company, Ampere, N. J. The bulletin states that any condition requiring small power applied electrically can be successfully met by the line of Crocker-Wheeler direct-current motors.

Every engineer should send for a copy of a four-page folder just issued by the Stayman Manufacturing Company, 143 Liberty street, New York, N. Y. The circular is neatly printed in colors, and contains large, well-executed engravings which explain in detail the novel features of the Stayman self-expanding pistons.

Those of our readers who are interested in technical books should send for a copy of a catalogue of selected books published by the Norman W. Henley Publishing Company, 132 Nassau street, New York. This catalogue describes a variety of books regarding electricity, machinery, gas engines, mechanics, steam engines, locomotives, air brakes, sheet metal work, etc.

"The Commercial Consumption of Fuel" is the title of a twelve-page folder which is being distributed by Waller & Renaud, 159 Front street, New York, N. Y. Every man who purchases or uses fuel will find some good points brought out in this folder, and we understand that copies will be sent free to all inquirers on referring to MARINE ENGINEERING.

Users of radiators for steam heating, whether for use on board ship or in buildings on shore, should send for a copy of a catalogue issued by the American Radiator Company, 282 Michigan avenue, Chicago, Ill., entitled "Popular Patterns of American Radiators." The catalogue is of convenient size, attractively printed and comprises about fifty pages, illustrating a large variety of radiators for all uses and purposes, and giving much other valuable information regarding the subject of heating.

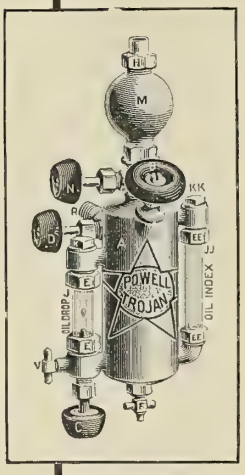
Dart pipe unions, as made by the E. M. Dart Manufacturing Company, Providence, R. I., are thoroughly illustrated and concisely described in a neat catalogue which this company is distributing. There is not only the necessary information regarding the different sizes and types of unions, but also tables that the use of these unions would call for. There are also reproductions of letters from leading engineering concerns which have made use of this company's product, and something like one hundred and fifty names of prominent concerns in various parts of the United States which are extensive users of Dart pipe unions.

Users of valves should send for a copy of pamphlet No. 4, which is being distributed by the Golden-Anderson Valve Specialty Company, 105 Rike street, Pittsburg, Pa. The catalogue contains nearly forty pages, 5 x 7 inches in size, and on most of the pages are full-sized pictures, illustrating the several specialties described. These specialties include the following: Anderson cushioned non-return valves, combination cushioned non-return valves, cushioned triple-acting non-return valves, patent pressure reducing valves, automatic and counterbalanced valves, automatic valve and water columns, float valves, altitude valves, Golden patent automatic tilting steam traps.

"Automatic Belt-Tightening Idler" is the title of flyer No. 276, which is being distributed by the Crocker-Wheeler Company, Ampere, N. J. This flyer describes a newly-designed automatic belt-tightening attachment for the standard Crocker-Wheeler form L motor. The device may be used wherever the limited center distances between pulleys require an increased belt contact on the pulley surfaces. This device is so designed and supplied to the customer that it may be attached at any time to any L motor. Its principal parts are the idler pulley, arm and block, spring stud and block, and the adjustable spring and hook for connecting them.

New improved single frame standard guide steam hammers with reinforced guides and stiffened columns, as manufactured by the David Bell Engineering Works, Buffalo, N. Y., are illustrated and described in bulletin No. 805, which has just been issued. Copies of the bulletin will be forwarded free, upon request. This company now makes a specialty of steam hammers, building them practically in all sizes. During the past few months quite a number of hammers have been sold to the United States Government, and one order of three has been shipped to the Isthmian Canal Commission for use at Panama.

YOU all remember the old adage, "He works like a trojan"—so does the Powell New Sight Feed Lubricator. We designed the cup, put it through a series of tests and no name in the vocabulary fitted so well.



You can rest assured

IT WORKS.

THE POWELL "TROJAN"

Being our former Class A, reconstructed and very much improved. The handsomest, best and latest up-to-date Lubricator.

Supply Dealers Everywhere Sell Them.

THE WM. POWELL CO.

Cincinnati, O.

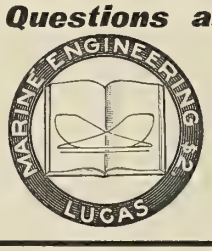
NEW YORK DEPOT
51 Cliff Street

PHILADELPHIA DEPOT
578 Arch Street

BOSTON DEPOT, Cor. High and Congress Streets

"Locks and Hardware" is the title of catalogue No. 18, just issued by the Yale & Towne Manufacturing Company, 9-15 Murray street, New York city. It is a handsome volume of about two hundred pages, 6 by 9 inches in size, and is intended especially for those who handle a regular line of the hardware referred to. Special and irregular kinds of hardware are omitted. Included in the first thirty pages or so is much technical information extracted from "A Treatise on Locks and Builders' Hardware," a handsome book written by President Towne of the company, and recently published by John Wiley & Sons, of New York. The different subjects covered by the several chapters in the catalogue are shown by the following headings: Padlocks, Night Latches, Dead Locks, Builders' Hardware, Locks in Sets, Keys and Blanks, Cabinet and Trunk Locks, Blount Door Checks, Chain Blocks, Special Products. At the end of the volume is a very complete index. There is also an interesting article on the Mechanism and Care of Locks, Lock Picking, Master-Keyed Locks, etc. We infer that any reader who is interested in this subject, and who uses locks and other hardware, will have a copy sent to him upon application.

Questions and Answers for Engineers.



THE book contains 807 practical questions covering all branches and departments of the marine engineers' profession. Each question is a straight-forward proposition, and a good question often suggests many new ideas for study and practice. Each question is fully answered and explained, many with diagrams and illustrations. Also contains a complete course in mathematics for the Engineer, with forms and rules for useful measurements of water tanks, coal bunkers, speed problems; how to figure horse power and the latest and most complete safety-valve, rules etc. Sent post paid to any address upon receipt of **$2**

THEO. AUDEL & CO., Publishers, 63 Fifth Ave., New York, U.S.A.

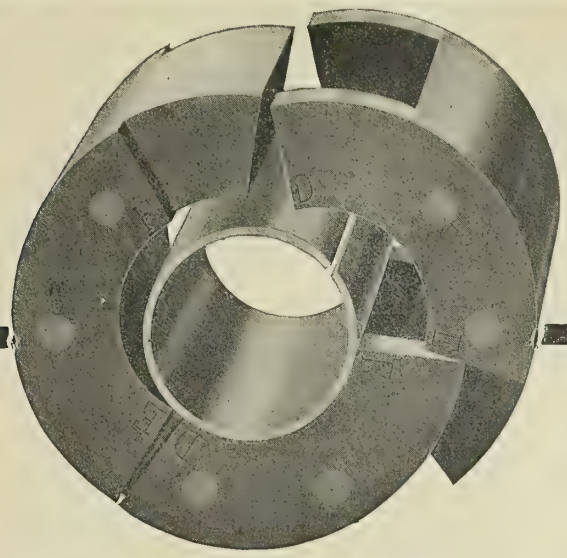
UNITED STATES METALLIC PACKINGS

RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

427 North Thirteenth St., PHILADELPHIA. CHICAGO, 509 Great Northern Bldg.



This Piston Valve **SAVES COAL,** because it is

Self-Expanding, thus avoiding friction in the cylinder.

Steam-tight at all points.

The most perfectly controlled valve on the market.

WRITTEN GUARANTEE FOR FIVE YEARS

STAYMAN MFG. CO.

143 LIBERTY STREET, NEW YORK, U. S. A.

CATALOGUE FREE

Pneumatic Compression

RIVETERS

Fewer Parts
Less Air Consumption
Greater Durability
Less Weight than any other

Write for Catalog C

F. F. SLOCOMB & CO., Wilmington, Del.

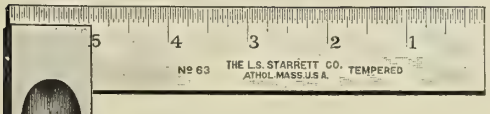
BUSINESS NOTES.

The Falls Hollow Staybolt Company, Cuyahoga Falls, O., states that its hollow bars, made of soft steel, can be used to great advantage in many cases for hollow shafting.

I X L steam packing.—There has been placed on the market what is known as the I X L steam packing, which is claimed to have unusual powers of resisting the action of superheated steam, acids, ammonia, etc. The packing is easily applied, and is claimed to give absolutely tight joints for the highest pressures. The makers recommend it particularly for use in the packing of cylinder heads and steam chests, as well as piping, as it will not be pressed out or blown out from between the flanges. If properly applied at first it should not be necessary to tighten the bolts of the flanges afterward. It is believed to be the first non-metallic packing capable of withstanding a pressure as high as 15 atmospheres or a temperature as high as 900 degrees F. Moreover, it can be used with rough or unmachined flanges. It is made in all thicknesses, and is light in weight for a given surface. The $\frac{1}{16}$-inch thickness weighs only 5 pounds to the square yard. The packing is made by the I X L Steam Packing Manufacturing Company, and the selling agents are Frederick Vietor & Achelis, New York city.

The Indicator Instruction Company, 50 Columbia street, Newark, N. J., announces another improvement in the Simplex Indicator which accompanies its course of instruction, and it claims that these improvements have placed its indicators not only on an equality with the highest-priced makes, but in many respects above them, and that they are models of convenience and accuracy. This Simplex indicator is supplied to every student of the course as a loan during the progress of his studies, and for the present it has decided to make each student a present of the outfit as soon as his scholarship is paid up, without extra expense. The company has recently secured the service of Mr. F. Dobe, 95 Washington street, Chicago, Ill., to represent it in that city and vicinity, and it is also represented in Boston by Mr. D. S. Boyden, 43 High street. The company expects to secure representatives in other important cities in the near future, and is open for applications. Further particulars of the course of instruction, the indicator, and terms to representatives, may be had by addressing Mr. A. C. Lippincott, general manager, 50 Columbia street, Newark, N. J.

The United States Army transport service has been using the boiler compounds manufactured by the Bird-Archer Company, 209 Washington street, New York city, and Charles P. Wormwood, superintending engineer, has written the Bird-Archer Company the following letter: "Regarding the use of your Manhattan boiler compound and its value as a scale, grease, and oil remover from boilers as well as a preventative of scale forming in boilers, I respectfully advise you that after making a careful test on the United States Army transports of the Atlantic coast fleet, out of several compounds we have adopted yours for our use entirely, as it fulfills excellently the above qualifications. I have noticed on inspecting the boilers of the transports and tugs in my charge, that it has entirely removed the grease and oil without injuring the plates, and has also stopped pitting in many cases. This is something I have never known a compound to do before, which is naturally a great advantage to all marine engineers and owners of marine craft. I respectfully recommend your Manhattan boiler compound to those who are anxious to secure an article of merit."



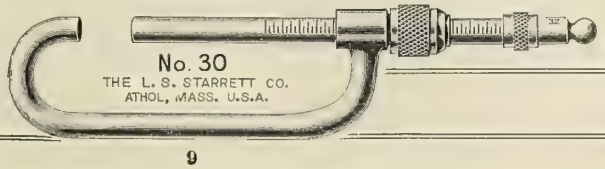
Through the Hole

For exact measure

A Government Inspector's of ship's plates, etc., at points drilled. **Starrett Tools**

suggestion for test-measure where pierced, punched or provide accurate and time-saving means of meeting mechanical requirements. Read Book No. 17-L.

THE L. S. STARRETT CO.
Athol, Mass., U. S. A.



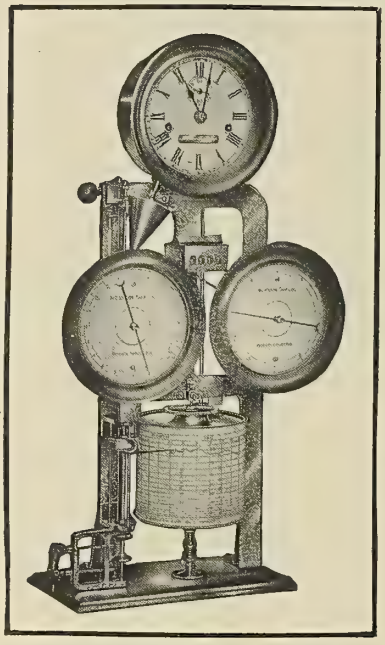
New York
Chicago

Saves fifty dollars a day.—The Spence Manufacturing Company, 475 Broadway, St. Paul, Minn., recently installed one of its freight conveyors at the wharf of the Old Dominion Steamship Company, so that now freight is handled almost all the time by this electrically-driven device. Boxes, barrels, bales, and all sorts of freight are readily handled on this conveyor, and it is claimed to do more than twice the work that can be accomplished any other way. Indeed, the manufacturers claim that a conveyor will pay for itself in a few months, and on an ordinary line where there is much work to do will bring about a saving of fifty dollars or more a day in the expense of handling freight. A circular which is being distributed by the Spence Company states that by a simple device a record is kept of all packages transported and that the conveyor can be used at almost any angle. The machinery can be stopped instantly by pressing a push button. Because of the special way in which the traveler is made, inexperienced men can be used as well as those who are experienced. A guarantee accompanies the conveyor that from three thousand to five thousand packages can be handled per hour. Further information regarding this device can be secured by addressing the company.

Marine repairs.—The steamer *Grand Republic* has recently been sold to the Iron Steamboat Company, and is going to have a thorough overhauling and new boilers this winter, involving an expenditure of $50,000 to $60,000. The contract for the work has been awarded to the James Reilly Repair and Supply Company, 229 West street, New York city. The Reilly Company has just completed a new mooring pier in front of its works, foot of Sussex street, Jersey City, N. J., which gives practically 1,000 feet of water front for tying up vessels for repairs. The company is reconstructing its machine shop, and when the changes are made it will be one of the best-equipped and most conveniently located repair plants in the harbor of New York. Since the pier has been completed it has had moored alongside it the city boat *Minnahanonck*, which is being overhauled, and the company has overhauled the steamships *Buckman* and *Watson*, preparatory to their trip to the Pacific coast, in addition to miscellaneous repair work. This company is also constructing a new six-story building on the site of its headquarters, at 229-230 West street, New York, in which it will consolidate its supply department, which has entirely outgrown its present quarters at 233 West and 78-80 Beach streets.

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance travelled is correctly shown on a counter. Guaranteed to register within 2% No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

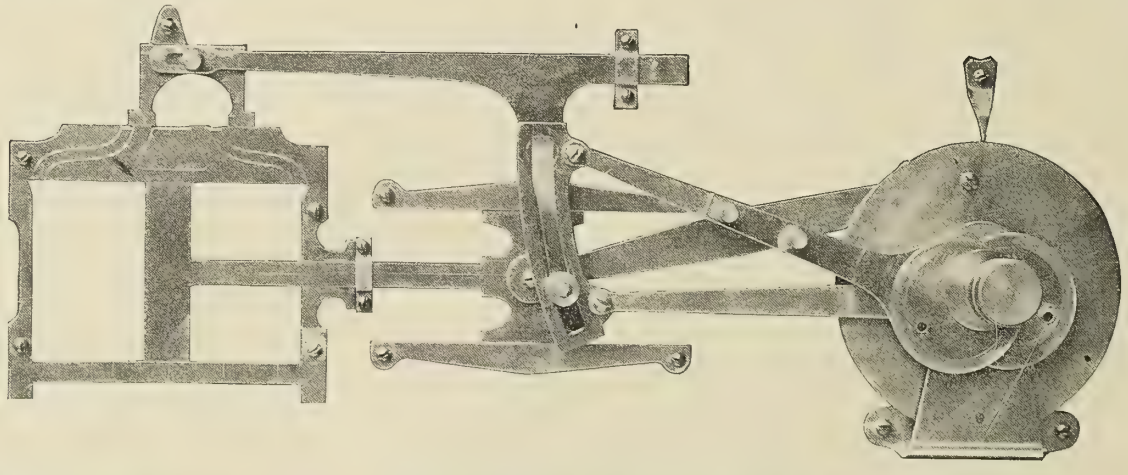
Catalogues and Full Information on Request.

Nicholson Ship Log Co.

204 Superior Street, Cleveland, Ohio

Valve and Link Motion

To any reader of Marine Engineering who will send us **Three New Subscriptions,** and $6 domestic (31/6 foreign), we will send free of charge a valve and link motion model.



This is the most practical, the simplest and the best device ever offered to study the working of a Marine Engine.

The model will be sold for $6 domestic (31/6 foreign).

MARINE ENGINEERING, - - - 17 Battery Place, New York

Enlarged facilities.—Owing to the great increase in all branches of its business, the Marine Manufacturing and Supply Company, whose main offices are at 158 South street, New York, is moving its entire manufacturing department to New Brunswick, N. J. This department will occupy a new plant which fills the larger part of a city block, and which includes iron and brass foundries, a machine shop, blacksmith, and pattern shops, etc. This plant will be devoted to manufacturing steering wheels, windlasses, hoisting winches, crabs, derrick fittings, and a complete line of shipbuilders' and contractors' supplies.

Staybolt salesmen.—The Falls Hollow Staybolt Company, Cuyahoga Falls, O., has engaged Mr. F. C. Lippert, 595a Bartner avenue, St. Louis, Mo., as traveling representative for the western territory. Mr. Lippert is a graduate of Cornell University and a mechanical engineer of high standing. He has made the subject of staybolt iron a careful study and has gone into the matter very extensively. He is therefore fully equipped to explain the advantages of staying modern high-pressure boilers in an up-to-date and scientific manner. The Falls Hollow Company has just received an order for a quantity of hollow staybolt bars from the American Railroad Company, San Juan, Porto Rico. Also another large order for hollow bars for shipment to Japan.

Lackawanna motors.—Owing to the great increase in its volume of business, the Lackawanna Manufacturing Company has found it necessary to have much larger facilities, and has, therefore, moved into a large new plant at Newburg, N. Y., where all business will be attended to hereafter instead of at Buffalo. The valveless motors of this company distinguished themselves at recent contests at Niagara Falls. The Niagara Frontier Fish and Game Club held races in which twenty-two launches owned by members of the club were entered. The Niagara Falls (N. Y.) *Gazette*, of September 21, contains a full account of the races and states: "A noteworthy feature about the races was the fact that all three of the winning boats were propelled by the famous Lackawanna engines."

Rathbun-Lacy Company.—Messrs. Frank H. Lacy, V. E. Lacy, Jr., Edward Rathbun, and others, have organized the Rathbun-Lacy Company, at Toledo, O., to build a line of up-to-date gas engines of marine type. The company starts in with $30,000 capital stock, but expects in a very short time to largely increase this amount. A complete line of engines, both two-cycle and four-cycle, from the smallest to the largest horsepowers, will be built. All of the members of the company have had years of experience in connection with gas engines; Mr. Rathbun as designer and engineer for the S. M. Jones Company, V. E. Lacy, Jr., with the gas-engine department of the Pope Motor Car Company, and Mr. Frank H. Lacy is too well-known as a salesman of gas engines to need further introduction.

Lumber for shipyards.—Mr. Charles N. Crowell has recently gone into the lumber business at Orange, Tex., for the special purpose of supplying lumber of all kinds for use in shipyards. Mr. Crowell has also done considerable marine work himself, having recently built a dry dock in his own yard. This floating dry dock is a single box, length over all 332 feet, with a width of 95 feet, a depth of 14 feet, and a capacity of 5,000 tons. It was built on order from the New Orleans (La.) Dry Dock and Shipbuilding Company, and is constructed of fine quality of yellow pine timber largely in lengths of 60 feet. In addition to supplying lumber for builders of boats and vessels of all kinds, Mr. Crowell furnishes designs for dry docks and builds them under contract.

The improved heating apparatus for steam and electric railways, and for other purposes, manufactured by the Gold Car Heating and Lighting Company, 17 Battery Place, New York, N. Y., is very comprehensively and thoroughly illustrated and described in a finely-printed cloth-bound catalogue of 125 pages. This company's system is the result of twenty years or more experience, and the catalogue gives a great deal of information regarding the general subject of steam and electric heating, as well as of this company's specific system, which every man interested in engineering should know. All of the system which can be illustrated is shown by excellent cuts, and there are many sectional views of the different varieties and other attachments. Among these special features of particular interest outside of the heating is the Gold improved balance valve-pressure regulator, Gold's improved temperature regulator, Gold's improved automatic tee trap, Gold's improved vertical trap, Gold's improved system of hot-water circulation, Gold's ideal safety valve, Gold's improved storage system for heating compartment cars; also for heating refrigerator cars. This company's electric system of heaters is also fully illustrated and described. In the latter pages of the volume are a number of letters from railroad managers and superintendents and other large users of this company's specialties speaking of them in the most complimentary terms.

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Advertisements will be inserted under this heading at the rate of 4 cents per word. No advertisement will be inserted for less than 75 cents for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Naval Architect, 29, energetic, capable, 12 years' experience, ship and yacht building, now in good position with large shipbuilding firm, desires change to small yacht building firm or naval architect's office; invest $1,000 if desired; partially outside position preferred, with plenty work; references. Address, M. M. K., care Marine Engineering, 17 Battery Place, N. Y.

Shipbuilding Engineer, a Hollander, graduated from the Delft Technical University, first-class references, speaks and writes English, French, and German, desires position in shipyard; large salary not required. Address A. M. SCHIPPERS, Veaardingen, Holland.

A Draftsman, a young man with experience and education, practical, capable to assume full charge of designing and construction, wants position as shipbuilding draftsman in small yard. Address Y. X., care Marine Engineering, 17 Battery Place, New York.

Who Wants an Experienced New York Representative? A man 40 years old, married, college graduate, 17 years' experience in shipbuilding as designer, in charge of construction, and engineer representative, having extended business acquaintance, desires position as sales representative in New York city of established firm connected with shipbuilding. Address EXPERIENCED, care Marine Engineering, 17 Battery Place, New York.

A manufacturing corporation making specialties applicable to most engineering and industrial lines desires to secure the services of men having technical training in the engineering line and some experience as salesmen; one to be located in New York city and one in Chicago. Address T. B., care Marine Engineering, 17 Battery Place, New York.

The Ingersoll-Rand Company, of 11 Broadway, New York, announces the establishment of a branch office at Houghton, Mich., under the management of Mr. T. F. Lynch, who has for several years past represented the Ingersoll-Sargeant Drill Company in the copper and iron districts of the north. At the new office a complete stock of repair and duplicate parts for all Ingersoll-Rand pneumatic and other machinery will be carried, assuring the most ready service to patrons of the company in the territory covered.

New firm of naval architects.—Messrs. C. Sherman Hoyt and Montgomery H. Clark have formed the partnership of Hoyt & Clark, naval architects and engineers, with offices at 17 Battery Place, New York city. Mr. Hoyt has just returned from two years in Scotland, where he took the course in naval architecture at Glasgow University, and also was employed at the yard of John Brown & Company, at Clyde Bank, during the construction of the new Cunarders *Carmania* and *Coronia*. Previous to this he was connected with the Eastern Shipbuilding Company, at New London, Conn., and with the Townsend & Downey Company, at Shooter Island. Mr. Clark has been in the designing and surveying business in New York for the past three years, first under the firm name of Liljegren & Clark, and later under his own name. The firm will also do a yacht-brokerage business.

Motor drive for tools.—Manufacturers who plan the application of motor drive to machine tools are often unable to make satisfactory progress with the work because of the lack of information necessary to enable the electrical manufacturer to bid on suitable machines. The electrical manufacturer usually follows a request for quotations with a request for complete and detailed information regarding the motor equipment needed. The Northern Electrical Manufacturing Company, Madison, Wis., is able to send the purchaser quotations on Northern machines for application to machines and machine tool drive upon learning of the class of work to be accomplished and voltage of the power circuit from which the current is to be taken. The Northern Electrical Manufacturing Company has an extensive experience in all kinds of manufacturing plants applying motor drive for increased output and is usually able to determine upon the proper sort of motor equipment to be applied upon learning of the conditions.

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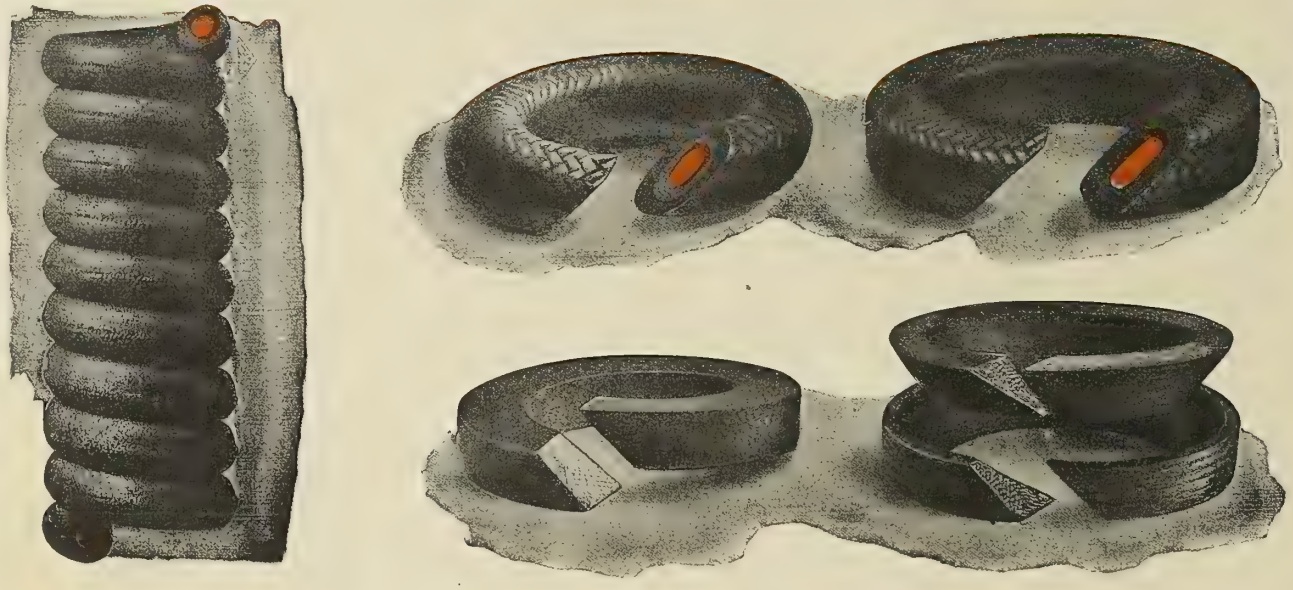

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TRADE PUBLICATIONS.

A free sample can full of mineral machine oil will be forwarded to any reader of MARINE ENGINEERING by G. E. Hall, 211 Centre street, New York city. This oil is said to be suitable for either heavy or light work.

Drop forged machine wrenches are described and illustrated in a booklet issued by the Billings & Spencer Company, Hartford, Conn. There are more than fifty illustrations showing the many varieties of wrenches which this company manufactures for every conceivable purpose. One illustration shows a picture of 45 different drop forged wrenches assembled together.

Every user of packing and gaskets should send for a booklet entitled "A Few Remarks by Father Knickerbocker," which is being distributed free of cost by the Peerless Rubber Manufacturing Company, 16 Warren street, New York city. The booklet describes in a sort of story form the uses for rainbow packing, eclipse gaskets, etc., and is illustrated with about a dozen or more amusing little pictures.

A free copy of a very neat catalogue, known as "Ideal" catalogue No. 7, will be sent to all inquirers by Gustav Wiedeke & Company, Dayton, Ohio. The catalogue comprises over fifty pages in which there will be found complete descriptions as well as illustrations of the various tools which this firm manufactures. Among these tools are the following: Mandrels, sectional beading, tube expanders, as well as a variety of other tube expanders for general and special uses, self-feeding tube cutters, standard punches and dies, tube hole shearing punches, ratchet drills, together with jacks, reamers, taps, etc.

"Oil Fuel for Ships" is the title of a handsome catalogue just issued by Tate, Jones & Company, Incorporated, Frick Building, Pittsburg, Pa. Every reader of MARINE ENGINEERING who is at all interested in the subject of fuel oil should send for a copy. Following are some of the subjects treated: The advantages of oil fuel; proper methods and conditions for burning fuel oil under boilers; records of the apparatus as manufactured by this company for using oil, and showing the manner in which it is adapted to boilers for use on ships. There are a number of very complimentary letters from users of this company's system, together with a report of record runs which different steamships have made with fuel oil.

"Mechanical Draft, What It Is and What It Does," is the title of a booklet issued by B. F. Sturtevant Co., Hyde Park, Mass. This booklet not only briefly presents the salient features of this system of draft production, but illustrates a variety of plants which clearly show "what it is." The suggested query in the words "what it does" is answered thus: *It does* what an ordinary chimney is incapable of doing. Its cost is from 20 to 40 percent of that of a chimney; its intensity permits of the burning of finely divided or low-grade fuel; it makes possible the utilization of the heat of the flue gases which a chimney wastes in producing draft; it is independent of the weather; is automatically regulated to maintain constant steam pressure, decreases smoke, increases the capacity of an existing plant, and serves as an auxiliary to a chimney already overburdened; saves space and is portable.

Steam specialties, such as self-cleaning steam traps, gauge cocks, low pressure water feeders, etc., are described and illustrated in a circular issued by George W. Neff & Co., 42 Broadway, New York City, successors to Bailey, Brown & Bailey. Regarding the "Vesuvius" self-cleaning steam trap the circular states that it "differs so radically from other makes that a word of explanation is necessary. The incoming water is received in the copper gravity bucket situated in the dome of the trap. This bucket is so balanced that when nearly full it upsets. The water is thus delivered for the action of the valve in sudden quantities. The outlet is closed by the ball which is held in position by the pressure. When the bucket discharges, the float rises suddenly, pulling the ball from its seat by means of a lever and clutch. As soon as released the ball falls to the lever below, leaving the outlet wide open. This action of the bucket also serves to keep off dirt, sediment, scales, etc., in suspension, and while in that condition it is constantly being blown out of the trap. When discharging water the valve is wide open, never partially open."

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When writing to advertisers please refer to MARINE ENGINEERING.

Pipe-bending machines are illustrated and described in a circular issued by the Chicago Pneumatic Tool Company, Chicago, Ill. The circular states: "A great number of these bending machines are in use in shipyards, railroad shops, and pipe shops in both the United States and foreign countries, and have in every case proven themselves to be an indispensable adjunct to all well-equipped shops where such service is required."

Wood Craft is the title of a new trade journal published by the Gardner Publishing Company, Cleveland, Ohio. The magazine is of standard size and the first number contains 72 pages. The new magazine, it is announced, will deal with the general field of wood working, and will go to pattern makers, cabinet makers, furniture factories, launch and boat builders, etc.

Users of steam pumps will have a card sent to them by the Buffalo Steam Pump Company, Buffalo, N. Y., if they refer to Marine Engineering. This card contains pictures of eight different types of pumps which this concern manufactures; also an interesting picture of an old-fashioned hand fire engine, such as was used by the volunteer fire brigades forty or fifty years ago.

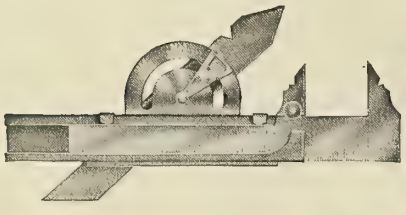
There will be a flutter in the hands of everyone of our readers who will send to A. C. Clark & Company, Randolph street, corner Michigan avenue, Chicago, Ill., for one of the flutter bugs which this firm is sending free to all enquirers in connection with a concise description of the Clark mechanical boiler cleaner. This device, as stated in the folder, "is not a flue cleaner but a boiler cleaner."

Baxter D. Whitney & Son, Winchendon, Mass., manufacturers of wood working machinery, are issuing a handsomely printed and illustrated booklet giving the history of the firm and describing some of its wood working machinery. The booklet states: "The Baxter D. Whitney works have been in operation under the same management since they were established sixty years ago. It has always been the intention to deal honestly. It is still the intention to deal honestly. This business principle is the Whitney guarantee."

Air-cooled Duntley electric drills have a special circular known as No. 52 devoted to them, which is published and distributed by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. A number of illustrations are given of different types of drills, and the necessary information regarding full currents, etc., accompanies them. These drills are adapted to a wide range of work and can be used to advantage in all sorts of places, in many of which other drills could not be used. They are regarded as especially economical, particularly for portable tools.

Electric storage batteries for ship and yacht lighting, for signal lights, electric launches, gas-engine igniters, and other such purposes are fully described in a series of folders and bulletins issued by the National Battery Company, Buffalo, N. Y. In addition to the several general circulars, there are a number of special ones. Bulletin No. 1 refers to the use of this company's storage batteries in its telephone exchange. Bulletin No. 2 is a complete description of a storage-battery plant used in connection with a water-power system. Bulletin No. 3 describes a plant of these batteries for car-lighting purposes.

The November number of the *Progress Reporter,* published by the Niles-Bement-Pond Company, 111 Broadway, New York City, describes and illustrates several large machine tools, such as a 30-inch lathe, a 3 x 36 turret lathe, a 6-foot Niles standard universal radial drill, plate straightening rolls, etc. The *Progress Reporter* is issued at short intervals by the Niles-Bement-Pond Company with the object of informing the public generally and the employees of the company regarding the new machines and devices which are constantly being brought out. Any one interested will be placed upon the free mailing list.



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The Attention

of Advertisers is called to the Announcement on Page 13, regarding our new

English Edition

and the necessity of sending in copy before the 10th of the month.

"A Powerful Illustration" is the title of a folder issued by the Mianus Motor Works, Mianus, Conn., with the object of calling attention to one of the company's 4-horsepower engines, towing 12 boats and 44 men. An illustration of this feat accompanies the folder.

Wire rope for cables, hawsers, power transmission and many other uses, is described in a 64-page illustrated catalogue issued by the Macomber-Whyte & Moon Rope Company, 122 Centre street, New York city. In the rear of the catalogue are several pages devoted to test tables, useful information, etc.

"This is the Grip You Would Use on a Pipe to Turn it by Hand," is the title of an illustration on a folder issued by the Bullard Automatic Wrench Company, Providence, R. I. The company states: "The same grip is applied mechanically with a Bullard automatic wrench. All of the pressure on the handle goes to turn the pipe. The Bullard will not crush the lightest pipe."

Northern forge blowers are illustrated and described in leaflet No. 145, issued by the Northern Electrical Manufacturing Company, Madison, Wis. These forge blowers are manufactured in sizes ranging from 127 to 277 pounds, and the revolutions per minute range from 2,200 to 1,600.

"Will One Hundred Percent on Investment Interest You?" is the title of a pamphlet issued by the American Blower Company, Detroit, Mich., describing its "A. B. C." Type A engines. The pamphlet states that two engines each cost $250, the saving in the cost of operation being $234 per annum. Full particulars are given in the pamphlet which will be mailed upon application to all interested.

The safety stop valve, McLaughlin type, will be found well illustrated and described in an eight-page folder known as Catalogue A, issued by McLaughlin Brothers, Land Title Building, Philadelphia, Pa. A reproduction of drawings from the patent papers shows in detail the design of the valve, and pictures are given of the exterior, so that a very comprehensive idea of the valve is given.

The Rockwell annealing and hardening furnace, designed for oil or gas fuel, is described in a circular issued by the Rockwell Engineering Company, 26 Cortlandt street, New York city. This furnace is designed for hardening, tempering, case hardening, and annealing, as applied to making of tools, dies, taps, punches, cutters, screws, springs, machine parts, etc., requiring great uniformity of temperature. This company's furnace is said to be simple and strong, and one that should last for many years without repairs.

Northern ring-type machines, for power and lighting service, are described in Bulletin No. 51, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The bulletin states that in common with other manufacturers of electrical machinery, the Northern Electrical Manufacturing Company produces a line of dynamos and motors for large ratings. These are constructed in ring-type fields, which is the subject of the present bulletin, a free copy of which will be forwarded to all applicants mentioning MARINE ENGINEERING.

Automatic exhaust relief valves, suitable for reciprocating or turbine engines, made in horizontal, vertical, and angle pattern, are illustrated and described in a circular issued by Crane Company, Chicago, Ill. The circular states: "These valves are designed to provide a means of promptly relieving a condenser in the event of the vacuum being lost. They are a necessity in every condensing plant, as, should the vacuum be broken through any cause, the steam, not having a free exit, will destroy the condenser valves or possibly wreck the whole system."

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The Walworth Manufacturing Company
128 Federal Street, Boston, Mass.

"Questions and Answers for Engineers," by Theodore Lucas, is a book containing 807 practical questions covering all branches and departments of the marine engineer's profession. The price is two dollars, and the book is sold by Theodore Audel & Company, 63 Fifth avenue, New York city.

The Marck steam trap is described and illustrated in a catalogue issued by E. F. Houghton & Company, 240 W. Somerset street, Philadelphia, Pa. The catalogue states: "To show our faith in the Marck steam trap, every trap is sent out upon a 30 days' trial, and after that guaranteed for a period of two years."

Crosby recording instruments, particularly the Crosby pressure recorders, the Crosby pressure recorder and gauge, and the Crosby gas, mine, and draft recorders, are illustrated and described in a neatly-printed four-page folder, copies of which can be had upon application to the Crosby Steam Gauge and Valve Company, Boston, Mass.

Electric motors and dynamos are described in illustrated Bulletin No. 4, issued by the Barriett Electric Manufacturing Company, Cincinnati, O. It is claimed for these motors that they are of superior design, especially made for use in operating machinery where reliability is essential, and in places where the cost of operation is more important than the first cost of the motor.

Pneumatic tools are concisely and handsomely illustrated in a 64-page catalogue issued by the Cleveland Pneumatic Tool Company, Cleveland, Ohio. This company manufactures pneumatic tools for every conceivable purpose and any one interested in the subject should not fail to send for a free copy of the catalogue.

The American Blower Company, Detroit, Mich., is publishing neatly-printed specifications of its "A. B. C." vertical, high-speed, automatic engines. The company gives a written guarantee that the engines will develop indicated horsepower when operated under certain stated conditions. Copies of these specifications will be forwarded free to all who mention MARINE ENGINEERING.

Filing cabinets, sectional and solid; vertical filing systems and card-index record systems, are illustrated and described in a very complete 66-page catalogue issued by the Wagemaker Furniture Company, Limited, Grand Rapids, Mich. Managers of shipyards or of factories of any kind contemplating installing a filing-cabinet system should be sure to send for a Wagemaker catalogue.

Pop safety, water and hydraulic relief valves, cylinder relief and snifting valves, blow-off valves, chime whistles, pressure and vacuum gauges, revolution counters, marine clocks, pressure-recording gauges, thermometers, and other marine specialties are illustrated and described in Catalogue No. 12, issued by the Ashton Valve Company, 271 Franklin street, Boston, Mass.

Machinists' tools are described in a very complete illustrated catalogue of 156 pages, issued by the Brown & Sharpe Manufacturing Company, Providence, R. I. Rules, squares, micrometer calipers, gauges, accurate test tools, milling machines, grinding machines, gear-cutting machines, screw machines, and cutters, are the principal tools manufactured by this company, which will be pleased to forward a free copy of its catalogue upon application.

Nautical instruments are described in a 30-page illustrated catalogue issued by the Keuffel & Esser Company, 127 Fulton street, New York city. Sextants of many patterns, binnacles of half a dozen kinds, peloruses, liquid compasses, dry compasses, aneroid barometers, marine glasses, and, in fact, every instrument that a navigator uses, will be found listed in this catalogue, which also illustrates and describes drafting-room tapes and instruments of all sorts.

"Type N. Motors, Especially Designed for Crane Service." are described and illustrated in Bulletin No. 223, issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York city. The catalogue states that modern shop requirements demand facilities for handling raw material as well as assembled parts with maximum speed and minimum cost, and that this demand is now met with electric cranes, which it is claimed are the most satisfactory cranes now in use.

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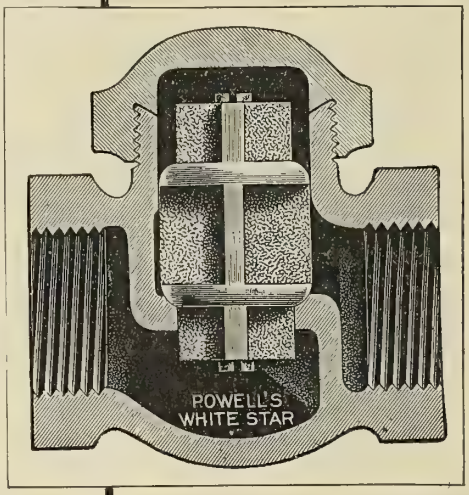
Reversible and Re-Grinding
CHECK VALVE



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Both ends made to gauge.
Economical because disk is reversible and saves putting in a new valve.
Will withstand a temperature of 2,000 degrees.
Simple and convenient—Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

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Everything in the steam line for the boiler and engine room
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NORTHERN MOTOR DRIVES
FIT ALL CONDITIONS
Easily applied, economically operated—effect increased output
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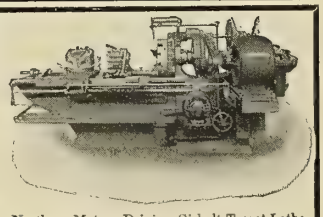
NORTHERN ELECTRICAL MFG. CO.
Engineers—Manufacturers, Madison, Wis., U. S. A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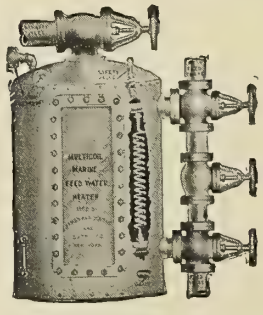

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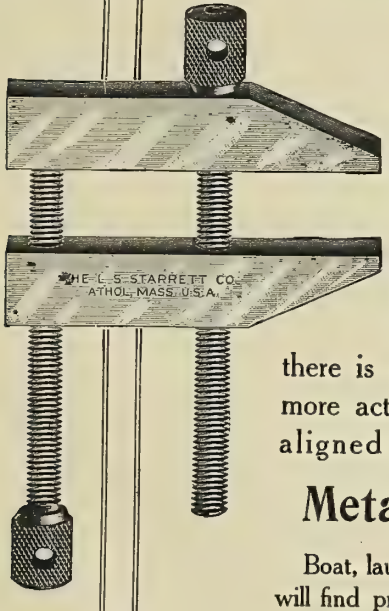

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there is probably no tool more active than perfectly aligned and hardened

Metal Clamps

Boat, launch and ship shops will find provision for all small tool needs in (free) Book No. 17-L.

The L. S. STARRETT CO.

ATHOL, MASS., U. S. A.

NEW YORK CHICAGO

BUSINESS NOTES.

A COAL-SAVING VALVE.—The Stayman Manufacturing Company, 143 Liberty street, New York city, has placed on the market a new self-expanding piston, which the company states saves coal, because the self-expanding feature avoids friction in the cylinder, while the valve is steam tight at all points, and is said to be the most perfectly controlled valve on the market. The company gives a five years' written guarantee.

THE MACOMBER-WHYTE-MOON COMPANY, 130 Centre street, New York city, is advertising galvanized flexible steel hawsers, mooring lines, standing rigging, and wire hoisting ropes. The company states that manila rope cannot hold its own with the Macomber-Whyte-Moon steel ropes, which, it says, are much stronger, lighter, and cost less than any manila or fiber rope made. Free catalogue will be sent to all applicants who mention MARINE ENGINEERING.

THE RECOMMENDATION OF UNCLE SAM is proof positive that one's goods or products are all that is claimed of them, say Adam Cook's Sons, 313 West street, New York city. Albany grease is used and endorsed by both the War and Navy Departments, and only recently Rear-Admiral John Lowe states in writing to Adam Cook's Sons, the only makers of this lubricant: "I have been the means of using tons of Albany grease, and consequently may be presumed to know its merits."

THE ELLIS & EAVES INDUCED DRAFT, manufactured by John Brown & Company, whose American representative is Mr. W. Carlisle Wallace, 22 Thames street, New York city, will, so it is claimed by the manufacturer, increase the efficiency of boilers 33⅓ to 50 percent, with a very slightly increased cost. The system may be installed on any marine or land boiler, and may be operated without difficulty by the regular engineering force. It is used in the larger navies of the world as well as in the merchant marines of all countries. For full particulars address Mr. Wallace.

JAPANESE ORDERS FOR MACHINERY and tools to American manufacturers.—L. S. Starrett Company, Athol, Mass.; Pratt & Whitney Company, Hartford, Conn.; Brown & Sharpe Manufacturing Company, Providence, R. I., and the Nicholson File Company, Providence, R. I., have received large contracts from Japan for tools and machinery to be used by the government. Much of the heavy machinery ordered is to be used for forging armor plate, and for repairing the damaged Russian vessels captured by the Japanese.

PNEUMATIC TOOL APPLIANCES.—Fred Duell, proprietor of the Seneca Machine Works, Seneca Falls, N. Y., manufactures a line of chisels, calking-tool blanks, and beading tools, for use in connection with pneumatic hammers. He also manufactures punches and dies. In order to still further introduce these tools to the trade, he offers to send tools on trial to responsible parties. The tools manufactured by this concern are not new by any means, having been on the market five years and having already made a most excellent reputation for themselves.

TEN CENTS ON THE DOLLAR.—Messrs. Hill, Clarke & Company, 156 Oliver street, Boston, Mass., are offering two special bargains in small tools. One comprises a lot of odd sizes of card-machine screw taps which the firm has in stock. These taps, of which the usual list price is thirty-five cents, are offered at the special price of three and a half cents each. The other bargain is a similar lot of odd sizes of card hand taps, which are offered at twenty-five cents on the dollar. For instance, taps which are listed at one dollar and twenty cents are sold at thirty cents.

WILL ENLARGE ITS PLANT.—The Quintard Iron Works Company, which has an extensive plant on both sides of Avenue D from 10th to 13th streets, East River, New York city, with wharf room for steam vessels, reports a great deal of business. The company is building a power plant on 11th street which will be 35 by 60 feet, to run the entire works west of Avenue D by electricity and compressed air. The Quintard Iron Works Company is also erecting a fireproof office building, 37½ feet front and 50 feet deep, three stories and basement, on the site of the old office, 742 East 12th street.

LARGE INCREASE IN BUSINESS.—The Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill., announces a large increase in its business during the months of October and November, having received a large number of orders for "Thor" pneumatic tools and appliances from all parts of the world. One cable order included two hundred "Thor" piston air drills, reversible wood-boring machines, and pneumatic chipping and riveting hammers. The business of this company is increasing with such rapidity that it is purchasing a large amount of new machinery, and building an expensive edition to its plant.

The H. W. Johns-Manville Company, 100 William street, New York city, has opened branch offices at Los Angeles, Cal., and Seattle, Wash.

Allen riveting machines.—John F. Allen, 370 Gerard avenue, New York city, reports a large demand for his riveting machines, which, he says, many of the largest concerns throughout the country are using.

Chicago Pneumatic Tool Company.—President J. W. Duntley, of the Chicago Pneumatic Tool Company, Chicago, Ill., has issued a statement of the earnings of the company for the third quarter of the present year. This statement shows that the profits for the quarter were nearly $250,000, and that after paying dividends and making allowances for depreciation, etc., the company gave to surplus over $100,000, showing that the company is in excellent condition, having a total surplus of nearly half a million dollars.

The brass flanged hub valves manufactured by the Lunkenheimer Company, Cincinnati, Ohio, are used, so say the manufacturers, by the thousand in the navy and in the merchant marine. The Lunkenheimer Company makes engineering specialties of every description.

The Bird-Archer Company, 209 Washington street, New York city, has appointed E. E. Caine, Seattle, Wash., its agent for the states of Oregon and Washington. Mr. Caine is well-known on the coast in the shipping circles. The Bird-Archer Company is shortly to erect in San Francisco a factory in which it will manufacture its marine and stationary boiler compounds. The company is doing this in order to be in closer touch with its rapidly-growing Oriental trade.

The Bridgeport *"A Motor That Motes"*

BRIDGEPORT MACHINE & MOTOR COMPANY

Send for "Motor Facts." Bridgeport, Conn., U.S.A.

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IN

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The Lackawanna Railroad now enters New York through a new gateway—West 23d Street. The imposing terminal opened there means added convenience for Lackawanna patrons. It means immediate access to the very heart of the great hotel, theater and shopping districts. It means a positive saving in time in reaching the uptown residential sections. It suggests one of the many reasons why the Lackawanna Railroad is the best way between

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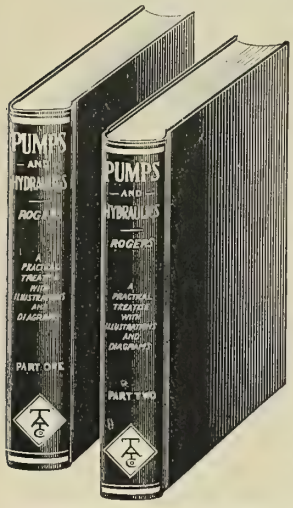
PUMPS AND HYDRAULICS



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Illustrations

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MARINE ENGINEERING

17 BATTERY PLACE, NEW YORK CITY

THE ELATERITE PAINT AND MANUFACTURING COMPANY, Des Moines, Ia., has received the following letter from Con McCauley, Master of the S. S. *Atlanta* of the Goodrich Transportation Company, Chicago, Ill.: "Beg to say we have used the paint bought of you, and are well pleased with it, as it does not blister and makes a good appearance, and am glad to recommend it as being an excellent paint for boat use."

AIR POWER PLANTS for shipyard and foundry are manufactured by the Ingersoll-Rand Company, 11 Broadway, New York city. The company states that as government specifications call for the highest refinement of design and efficiency, that the fact that the United States government in its six principal navy yards uses 21 Ingersoll-Rand compressors of various types and capacities is proof of the superiority of the company's machines.

SMITH & ROBINSON, ENGINEERS, Provident Building, Philadelphia, Pa., have contracts for six large wooden spoil scows and two dump scows for the Empire Engineering Corporation, New York. These scows are for use in an extensive dredging operation on the New York barge canal. Two of the scows are completed and will be delivered before the first of December, the others will be delivered in the early spring so soon as the weather permits. This firm also is in communication with parties regarding the sale of several tug-boats, launches, etc., on a brokerage basis, and has been busy with consulting and admiralty work both in Philadelphia and New York. Those wishing to buy or sell steamers, tugs or barges of any kind can receive full information by communicating with Smith & Robinson.

CANADIAN PLANT FOR PRATT & WHITNEY COMPANY.—It is announced that the Pratt & Whitney Company has purchased a plant in Dundas, Ontario, for the manufacture of a full line of small tools—taps, reamers, milling cutters, punches, dies, etc. The building is a modern structure and the power plant is already in place. The machinery equipment is being made ready at Hartford, and will be sent there and operations begun immediately. The plant, we are informed, will also include a department for manufacturing a full line of twist drills, an elaborate equipment of special machinery having been made ready for the purpose. The location of the factory is near that of the John Bertram & Sons Company, which, as has been announced, was recently purchased by the Niles-Bement-Pond Company.

ENGINES FOR MARINE AUXILIARIES are advertised by the Boston Steam Engine Company, 246 Summer street, Boston, Mass. The company states that its engines are of high speed, are light and easily overhauled, combining the advantages of lightness and accessibility of the open type with the neatness and freedom from dirt of the heavy cast iron engine. The company's designing engineer has had many years' experience with marine engines. The entire enclosing of all of the working parts, valve gears, as well as reciprocating parts in a double casing of sheet iron, the company states is a great advantage. There is a minimum number of working parts which might under any conditions work lose while all adjustments of bearings are easily reached. The company states that its engine at 100 pounds of steam runs electric generators ranging from 1 to 25 K. W. in capacity.

GOLD MEDAL FOR "LONG-ARM" EXHIBIT.—It is announced from London that the "Long-Arm" System Company, of Cleveland, O., has been awarded a gold medal for its Earl's Court exhibit of "Long-Arm" electrically-operated power doors for ships. This was one of the few displays of American devices in the Naval, Shipping, and Fisheries exhibit. The exhibit of this system, by which bulkhead doors are closed from a central station in time of an emergency, has attracted the favorable attention of many European naval experts. Foreign admiralties are investigating it with a view to its adoption, following the example of the American Navy, which has installed the "Long-Arm" system on thirty-two of our ships. The development of automatic bulkhead doors has been effected wholly within the United States Navy. Francis T. Bowles, formerly chief constructor, first conceived the idea of an electrical apparatus for operating these doors. Another graduate of the Naval Academy, W. B. Cowles, perfected Admiral Bowles' idea into the practical system now in use.

A MEETING OF THE EXECUTIVE COMMITTEE OF THE NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS was held recently at its office, 314 Madison avenue, New York city. Among the many reports submitted by various committees was one from the committee having in charge the recent national motor-boat carnival. Upon receiving the report the following resolution was unanimously adopted: "The national motor-boat carnival recently held on the Hudson River was a grand success and the representation of boats taking part very gratifying, bringing together many types of racing boats from all parts of this country. A vote of thanks is extended to the race committee, composed of Messrs. Charles P. Tower (Larchmont Yacht Club), Anson B. Cole (Manhasset Bay Yacht Club), A. Whitman (Seawanhaka Yacht Club), and F. W. Belknap (New York Yacht Club), for the able manner in which they conducted the numerous events; also a vote of thanks to the committee in charge of the event for the success of this great event."

A satisfactory marine-boiler compound.—The Bird-Archer Company, 209 Washington street, New York city, has received the following letter from the Dominion Atlantic Railway Company, Boston, Mass.: "I have been using your boiler compound on the ships of the company's fleet since January, with the best results. I can highly recommend your compound as a preventative of scale and grease in boilers. My experience has been on opening up the boilers of the various ships after a three months' test, that they were free from scale and grease and remarkably clean. Yours truly, A. MacGregor, Marine Superintendent."

Crandall packing.—The Crandall Packing Company, of Palmyra, N. Y., for some time has been considering the question of opening an Ohio office. The increasing demands of the trade have at last forced the establishment of a branch at Cleveland. A store has been secured at No. 9 South Water street, and has been stocked with one of the largest and most complete stocks of packing to be found in the city, and it will be in charge of Mr. John M. Chapman, who for many years has been connected with the packing business in Cleveland. Mr. Chapman will be glad to meet all his friends at his new location, and his many years of experience in this line bespeaks a successful outcome of this new undertaking of the Crandall people. Mr. Chapman expects to make this branch office the headquarters for the engineers in his territory, and the combination of a good man and a good packing should prove a winner.

"A distinct advance in piston valves," is the claim made by the Stayman Manufacturing Company, 143 Liberty street, New York city. These valves are self-expanding, the inner spring ring allowing the expansion and contraction of the interlocking segments so that they automatically adapt themselves to variations in temperature and unevenness in the valve chest. This interlocking self-expansion is said to make the piston steam tight. The company states that there are never any complaints that it needs regulating, and that it is never out of order. It is frictionless and the valve can be pulled back and forth by hand. The wear of any valve seat with a variable travel gear is increased at the ports or at the center of travel at the valves, thus producing leakage. The Stayman valve overcomes this by the expansion and contraction of the head to suit the varying diameters of the valve chest, thus filling the valve space and making a steam-tight joint at all points of the valve travel.

An adjustable compass-deviation corrector and position finder.—The Arbecam Alidade, adjustable compass-deviation corrector and position finder, made by Benjamin Varnum How, Boston, Mass., is especially designed for instantly taking bearings, cross bearings, etc., directly from the compass without possibility of error. It is said to be unaffected by vibration, rolling or pitching, and to adjust itself to every motion of the vessel. For commanding officers and navigators this instrument is invaluable, so the manufacturer states, as it simplifies many of the navigation operations and conduces to accuracy in a remarkable degree. With it the navigator takes no chances of error in the application of the deviation to compass courses or bearings. It is easily attached to any binnacle and ready for instant use day or night. The catalogue issued by Mr. How, a free copy of which will be sent upon application, states that the instrument has been tested by scores of careful practical navigators as well as teachers of navigation, all of whom give their unqualified endorsement. United States hydrographic officers testify as to its great merits. It is used in the revenue cutter service, twenty-one being ordered at one time for its vessels. A number of large yachts are also provided with this instrument.

YOU do not have to guess at the speed of your vessel if equipped with the

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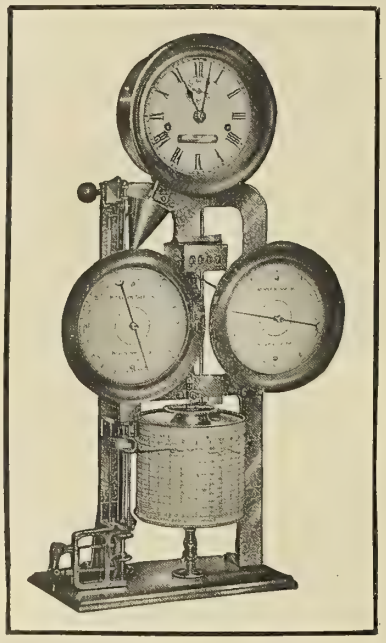

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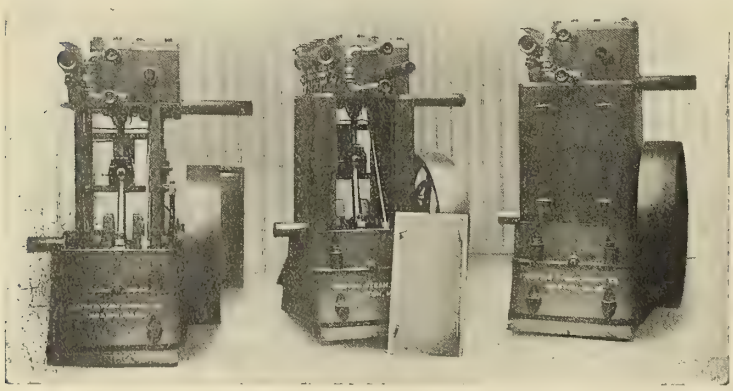

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Easily Overhauled

No Oil Flying about Engine Room

SEND FOR CIRCULAR AND PRICES

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"PRACTICAL MARINE ENGINEERING"

For Marine Engineers and Students.

WITH

Aids for Applicants for Marine Engineers' Licenses.

By PROF. W. F. DURAND,

Of the School of Marine Engineering and Naval Architecture at Cornell University.

Second Edition.

Price, $5.00

Postpaid.

THIS BOOK is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

PART I.—Covers the practical side of the subject.

PART II.—Covers the general subject of calculations for marine engineers, and furnishes assistance in mathematics to those who may require such aid.

The book is illustrated with nearly **four hundred diagrams and cuts** made specially for the purpose, and showing constructively the most approved practice in the different branches of the subject. The text is in such plain, simple English that any man with an ordinary education can easily understand it.

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Who Wants an Experienced New York Representative? A man 40 years old, married, college graduate, 17 years' experience in shipbuilding as designer, in charge of construction, and engineer representative, having extended business acquaintance, desires position as sales representative in New York city of established firm connected with shipbuilding. Address EXPERIENCED, care MARINE ENGINEERING, 17 Battery Place, New York.

A manufacturing corporation making specialties applicable to most engineering and industrial lines desires to secure the services of men having technical training in the engineering line and some experience as salesmen; one to be located in New York city and one in Chicago. Address T. B., care MARINE ENGINEERING, 17 Battery Place, New York.

ENLARGED LAUNCH WORKS.—Palmer Brothers, Cos Cob, Conn., have been obliged again to greatly enlarge their facilities for building engines and launches. It will be recalled that this firm built a large plant only a year or two ago, and now an expensive addition has ben made so as to be prepared to fill orders promptly for the coming season.

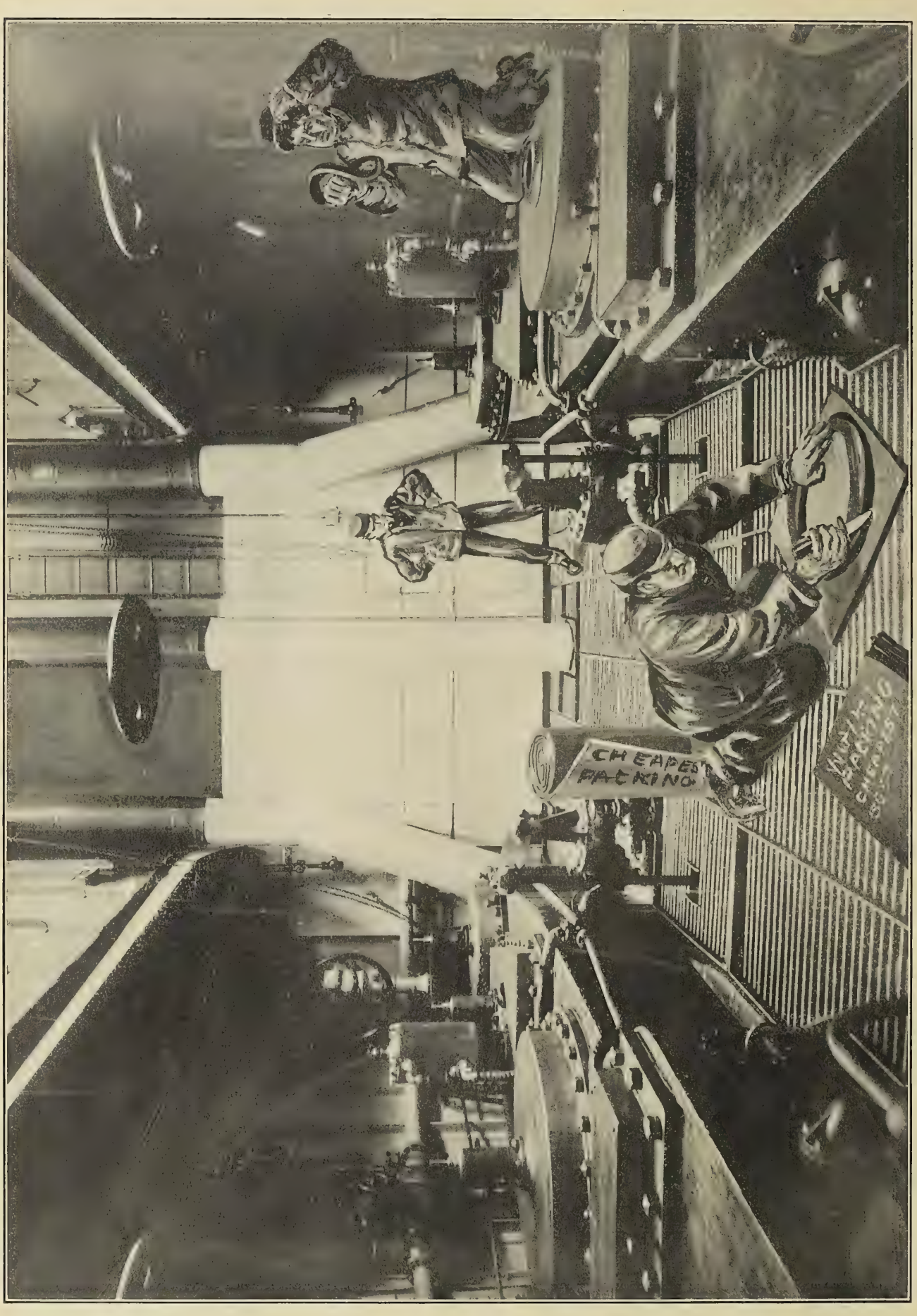
AMERICAN ROOFING TIN IN CHINA.—England has heretofore practically controlled the sale of terne or roofing plates to other countries than the United States, but a notable instance of American progressiveness is reported by Merchant & Evans Company, successor to Merchant & Company, Inc., the well-known manufacturers of high-grade roofing plates, metal Spanish tiles, "Star" ventilators, etc., in Philadelphia, Pa. This company reports that its Chicago office has completed shipments, amounting to thirty thousand square feet, of "Merchant's Old Method" roofing tin for the American legation buildings, at Pekin, China.

Beginning with the issue of January

MARINE ENGINEERING

will be published simultaneously in London and New York

ANY **instructions regarding advertisements** in the American Edition must be in the New York office not later than the tenth of the month ***preceding*** publication; and for the English edition, in the London office not later than the twentieth of the month, to insure the carrying out of such instructions in the issue of the month following.



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